DRAGON USER

The independent Dragon magazine

April 1987

Contents

Editorial

SO! A Dragon owner wins Incentive Software's second Moon Cresta **competition, in the face of massed Speccy and Amstrad owners as well as fellow Dragoneers. That'll tell'em the Dragon's still here. Well done Andrew Hill of Gwent.**

I hope to be seeing some of you (all of you would be just fine, but DU has readers as far away as Australia and the USA, so I'll settle for 'some' this time) at the London 6809 Show on the morning of March 28th, acts of God permitting. But, like any other nightmare, I vanish in a puff of smoke at noon, so come early if you want to nag me about anything.

Those who are too far north to make the London show should remember the Ossett Show on 11th April. Details of both shows inside.

Thanks to other contributors and editors, including Philip Beed of NDUG, who wrote to me about last month's editorial.

And who else spotted the deliberate mistake in the March Letters Page? Well, I suggest you go back and read it again then. See you at the Show.

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How to submit articles

The quality of the material we can publish in *Dragon User* each month will, to a very great extent depend on the quality of the discoveries that you can make with your Dragon. The Dragon computer was launched on to the market with a powerful version of Basic, but with very poor documentation.

Articles which are submitted to *Dragon User* for publication should not be more than 3000 words long. All submissions should be typed. Please leave wide margins and a double space between each line. Programs should, whenever possible, be computer printed on plain white paper and be accompanied by a tape of the program.

We cannot guarantee to return every submitted article or program, so please keep a copy. If you want to have your program returned you must include a stamped addressed envelope.

Letters

Beat the jungle

FOR those of us who own *Fire Force* by Quickbeam, and find that they are getting frustrated by the fact that they cannot get past the 'crack troop' infested jungle, I have found a way to go on to the next phase and miss out the jungle.

1) Make sure that there is only one joystick plugged in!

2) Once the game has loaded, press the fire button so that the computer shows the select colour screen. Then press 'A'.

3) This gets into the authorisation code screen. Then press 'C'.

4) This will give you the pass code screen. Using the joystick to move around type out "IMFTC" with no spaces. Then go on to the vertical arrow.

5) This then catapults you past the jungle.

Your readers might like to note that if the Break key is pressed during a normal game, before they run out of men, they will be sent back to the beginning with eight men but with their old score to recontinue where they left off last time — and so to build up their score.

And a note of appreciation. If it weren't for people like the Expert, the country would grind to a halt. Well, Dragon owners would, anyway.

Conrad
4 Rawston Down Road
Blandford
Dorset
DT11 8AG

Buzz discounts

DUE to lack of support, and admittedly through our own lack of organisation, we have decided to use the months up to July 1987 to re-organise. We will however be attending the computer show at Ossett, West Yorkshire on 11th April. We will be demonstrating all our software, including our new Tandy range. We hope to improve our services to the Dragon market in the future. Buzz Software are offering a 10 per cent reduction on our software to anyone who writes to us telling us what they would like to see for the Dragon and Tandy.

I would also like to hear from anybody from America wishing to swap games, information, etc. for the Dragon 32 and Tandy 64 computers.

S. J. Goodwin
Buzz Software
15 St. Stephen Road
Penketh, Nr. Warrington
Cheshire, WA5 2AN

Every month we will be shelling out a game or two, courtesy of Microdeal, to the reader/s who send the most interesting or entertaining letters. So send us your hints and your opinions, send us your hi-scores and suggestions. Send us your best Dragon stories. What d'you think we are, mind readers?!

EXTRA PUFF

Beware the hunting Dragon!

I read with interest the March edition of *Dragon User*, and particularly the Editorial.

One serious problem within the 'amateur' publications as I myself know is a lack of articles. Newsletters such as *Dragon Monthly*, *Dragon's Tail* etc. even even myself with the Drag Mag (Prestel: 700110021 . . . quick plug!) depend heavily on readers' articles, etc. It would appear from your editorial that you wish all articles, etc. to be centred on *Dragon User*.

Surely these smaller publications have a place. Suppose DU eventually comes to an end, then user groups and newsletters will be all the Dragon has on offer.

On the brighter side, I don't doubt that DU requires a great extent of articles, but surely there are enough Dragon users to feed any publication with articles. The time has come when we ALL must participate with our beloved micro, helping every magazine/newsletter to continue its work ... keeping the Dragon alive!

Simon Jones
37 Collins Meadow
Harlow
Essex CM19 4EN

Having worked with amateur publications myself, I understand your concern. It may come as a surprise to know that most editors have the same pfoblem to some degree.

I stand by last month's editorial, but perhaps I can make the thinking behind my comments clearer here. *Dragon User* has minute resources compared to many computer publications, but it still has a circulation vastly larger than any other Dragon publication, and is able to retain the services of professional writers by contributing, albeit modestly, to their efforts to make a living. This is to everybody's benefit: suppliers have the maximum scope for advertising, and users have the largest body of feedback from other readers. And we have a steady supply of good contributors.

Even so *Dragon User* frequently gets submissions which it has to turn down because the same idea has been covered too often in the past; I am also aware that there is a fund of ideas and knowledge in the Dragon world which is often not offered to DU, either because those who have it have not got the time to organise and write it up, or because it has not occurred to them that DU might want to see these ideas developed.

What I am suggesting is not that users should stop contributing to other newsletters, but that they should consider whether their ideas can be developed for *Dragon User*'s readership before consigning them in brief to their own user group, etc. I don't see this as a threat to user groups. On the contrary, the more that separate groups are able to exchange ideas on common ground, the more ideas will arise, and this will in turn give rise to further ideas for readers to contribute to their own groups or newsletters.

The more active Dragon users are, the more response they will get from other users; this is just as true for newsletters as it is for *Dragon User*.

Boost morale

IN the January 1987 edition of *Dragon User* the Expert said "And so the new year dawns, bringing with it new hope (unless you own a Dragon, in which case you've probably completely given up hope)." This is damaging to the morale of the Dragon community. I certainly have not given up hope and feel very optimistic provided damaging and mindless suggestions are kept out of the view of Dragon users. I would like to see an apology printed by the Expert.

Anyone who regularly watches BBC 2's *Micro Live* will notice that the Dragon is always left out of the reports. I have written to them complaining about this several times but I have never received a reply. There must be thousands of Dragon Users who watch this, and if the majority of them wrote to the BBC and complained about it then I think it would convince those involved that the Dragon is alive and kicking.

Finally, for the benefit of the Editor, Mike Gerrard and all those at Microdeal who can't read my address, it is below.

Donald Morrison
72 Diriebught Road
Inverness
Scotland IV2 3QT

PS I'm having trouble trying to get speed racer to work properly. Can anyone help? Also does anyone have any pokes for *Downland* or the code to activate the cheat function in *Stone Raider*?

WE asked The Expert for his comments, and he says that

damaging and mindless suggestions are his favourite kind, and would anybody who has any please send them to him at once. He also said 'I'm very sorry the cheque hasn't arrived yet'. Well, it's an apology. We think.

We regret that we can't print details of users' disputes with suppliers, for very sound legal reasons. Where a reader has a legitimate and intractible dispute, we can try to establish where the problem lies and pass on any relevant information. However, while orders can get lost and have to be chased up, we do think that chasing an order placed on 5th of January on and before the 21st of January is over optimistic. It is generally acceptable to allow 28 days for a mail order delivery before starting to worry. 36 days for final delivery is indeed a bit on the lengthy side, but not unusual when a company has to deal with a rush of orders.

It is a very good idea indeed to write to the BBC about Micro Live, and let them know that the Dragon is still active. We think that they will be more receptive to the Dragon world if letters are phrased as suggestions rather than complaints.

Epson update

TO me in my apparent ignorance an Epson is an Epson is an Epson — or was. Recently my Epson (an FX-80) broke down and I was forced to purchase another printer. Not being able (or willing) to pay out for another Epson, I purchased a cheaper one described as 'Epson compatible', and all my printing programs function identically.

However, a reader has questioned the compatibility of my February article and his Epson printer (an MX-80 Type III). From what I could see from the photocopies of a few of the pages of his Epson manual that he sent me, it could well be that the code that I use to set the printing modes (27, 33 ... or ESC!) is NOT valid on this type of printer. As the program sets up the codes into variables (lines 200+), at least it is a relatively simple task for such users to substitute appropriate codes — for example, to print enlarged (as also available on my FX-80), line 260 could be replaced with EN$ = CHR$(14) — shift out. The principle of the article was to show that by setting up the codes once at the beginning of a program, it is a simple task to control and change typefaces during operation by using two character variables than by writing out copious sets of codes each time and as a principle, this still holds true.

My apologies to those Epson users unable to use the program as supplied — and thank you for extending my obviously limited knowledge of Epson printers!

Pam D'Arcy
21 Wycombe Lane
Wooburn Green
High Wycombe
Bucks HP10 0HD

About Analyzer

WITH regard to your reader who wrote about the print routine in Analyzer (Mr. Van Wamelin-Dumalin), there seems to be no problem there except that he did not realise that *Analyzer* prints a space between cells for readability, he must think it's a word processor.

I have written some alterations to allow printing without spaces.

To remove these spaces requires a change in the program. Then you would have to type the text across the cells with spaces where desired, making the screen display look odd.

Please note that part of line 333 should read:

```
PLAY"T15O+X;CEGEGB"
```

where O is the letter and not zero. This will give a proper intro tune. The other error is:

```
197 FREADZ$,FROMZ+M,FORK;K(X)
```

The program cannot be compiled as written, but if anyone sends 10 Australian Dollars by bankers order, and a copy of their compiler with instructions, I can write and send a version that will compile.

Printer test example:

```
131 P2=.:GOSUB16:IFT=12THEN31ELSEPLAYB$:PRINT" spaces?";:GOSUB13:IFT=12THEN31ELSEIFT<>78THENP3=7ELSEP3=6:PLAYB$:PRINT"tab:";:X=2:GOSUB20:IFT=12THEN31ELSEPLAYB$:P2=VAL(Z$):IFR2<.THENP2=.ELSEIFP2>15THENP2=15
137 A=A+P2:FORX=1TOQ:POKES3,X+O:GOSUB3:A=A+P-3:NEXT:PRINT#J:NEXT:GOTO31
```

The above changes allow printing without spaces between cells with *Analyzer*. This may be useful when using *Analyzer* for presentations where some continuous text may be needed.

To use the facility type / to get COMMANDS, then (P)rint and choose the start row. You are now prompted with SPACES? which is the default so that if you do not press N *Analyzer* prints with spaces. If you pressed N, you are prompted with TAB: which allows you to print with a tab of zero, which is the default, to fifteen. Therefore to have the text all the way to the right, enter 15.

In the above example the line 00 is printed three times. The first line is with spaces *as typed in*. The second line is without spaces and zero TAB. The third line is without spaces and TAB15.

Note that cells C00 and G00 start with a space and to do that you must type a letter to get into INPUT and then backspace and then press the space bar.

Now to clear up a possible confusion with giving the printout a title. To give the printout a title press / then T and enter the title.

If you now wish to see the title, again press / then T. To leave the title untouched, press CLEAR. If you press ENTER, the title is erased. If you type something and press ENTER, then this is the new title. The title gets printed when you choose the (P)rint option.

Lothar Pilz
71 Woodville Road
Mooroolbark, 3138
Victoria,
Australia

Coventry call

I WOULD like to hear from any Dragon owners in the Coventry area. Please send to the address below enclosing an SAE for details.

Chris Vollbracht
110 Alpine Road
Styvechale Grange
Coventry
W. Midlands CV3 6NR

Basic user

I WOULD like to know of any user groups still around, for an unashamed gamer and an ashamed person who still uses Basic.

Paul Harrison
Derwent
Woodhouse Road
Brosely
Shropshire
TF12 5HL

Slipping belt

I AM having trouble with the drive belt in my disc drive slipping. Does anybody know where I can obtain a new belt?

I have also noticed many requests for a listing service. I can supply listings on either daisy wheel or dot matrix printer with only a small charge to cover costs. Please write (with SAE) if you want help.

M. Burridge
43 Midford Road
Combe Down
Bath BA2 5RW

Tandy pal

I would like a pen pal who owns a Tandy to exchange ideas, etc.

Shane Harper
17 Carlton Close
Cleethorpes
South Humberside
DN35 OND

News desk

Index interest

MAGBASE is a menu-driven database from Pulser Software, specially designed for indexing articles and letters, etc. from magazines. Records can be saved on tape or disc for future reference, and a single sided disc could contain 2000 records in a single file or combination of files. The program can also ALTER, DELETE, SORT in alphabetical order, VIEW, PRINT and MERGE. A complete disc file can be VIEWed as a check on the records contained within it.

The LOAD option allows loading either of a full file (if the memory permits) or a MARKed block. The latter is useful as it is possible to load records by numbers (eg 1 to 100), characters (eg from A to C) or pattern search (using any keyword). For example, is the keyword 'disc' is entered in a pattern search, Magbase will access any records with that word, within seconds, and display them on the screen.

The PRINT option caters for the Seikosha and Tandy printers at 80 characters a line, but other printers can be used by defining alternative print codes. Records can be double spaced for less than 80 characters a line or for easier reading.

Dragon User files

DU contains 800 records of all letters, articles and listings since *Dragon User* began in May 1983. Each record contains information on the subject area, date, and page of each item.

The *DU* file cannot be loaded into the Dragon's memory all at once, as it has over 50K of records. It can be viewed ('L' — DragonDOS) or loaded in marked blocks. Records have been sorted and saved in alphabetical order, and, in addition, it has been saved in small blocks (A-C, D-E, F-L, etc.) for access to all of a file.

DU hard copy

The hard copy consists of a photocopy of the printout of the records from May to the present. If the tape or disc are purchased with the records it is possible to produce your own copy by using the PRINT option. If you purchase the hard copy you will receive a twelve page booklet.

Contact Pulser Software at 36 Foxhill, High Crompton, Shaw, Oldham, Lancs OL2 7NQ for details of prices.

Other utilities, mostly disc based, from Pulser include *Discup*, £1.99, which moves workspace from the first graphic page further into memory and moves the page to location 1536. Machine code programs can be run with the DOS attached (64s or upgraded 32s only); *Zapper* , £5.99, which can explore and alter data in memory and on disc, move and copy sections of memory, copy and repair sections of a disc and investigate discs from other machines. Some printer and display utilities, and an extensive manual, are included and *Copy Cat* , which simplifies disc to disc copying, from double to single and vice versa, and to partially filled discs without overwriting. Pulser will also reprogram DragonDOS eproms with updates for £3.00. Add 50p post and packing for each item ordered.

6809 show

The next 6809 show at the Royal Horticultural Halls in London on 28th March already has Compusense, Computape, Harris Software, John Penn Discount Software, Microdeal, Occult Software, Peaksoft, Pamcomms, Quickbeam Software, Zone 4, the OS-9 User Group, National Dragon User Group and *Dragon User* itself booked to take part.

The best thing about missing the November show was finding out that we were missed — this time there will be a DU presence, so if you have any friends who aren't subscribers and should be, bring them with you.

Information about the show itself can be had from Jenny Pope at JPPR Ltd., on St. Austell (0726) 61185.



Dragon wins yet another Moon Cresta

INCENTIVE Software's second Moon Cresta arcade machine has been won by a Dragon user. Andrew Hill of Gwent, Wales (the original Dragon country) was the lucky winner drawn from a blue plastic component bin by Christina Erskine, who many of you will recognise, even from this hasty snapshot, as the Editor of *Popular Computing Weekly* .

Andrew scored over 30,000 points and lost all three ships to discover the words *Play another game* on the screen at the end. "He phoned us up, and he was pleased and delighted to have won" said Incentive's Ian Andrews. "We were please when a Dragon owner won, as well, because the second *Moon Cresta* competition was open to Amstrad, BBC and Dragon owners so, although only people who scored over 30,000 points were eligible, there was a lot of competition." *Moon Cresta* was one of Incentive's biggest games of 1986, and is still selling well — although they are producing no new Dragon software, the Dragon *Moon Cresta* is still available.

Congratulations from all at *Dragon User* to Andrew. But tell us, just where is he going to put a full sized arcade game? We considered the loo, but someone pointed out that you wouldn't be able to reach the controls. Oh well, back to the *Beano*.

Moon Cresta has been much seen in the land just lately. The winners of *Dragon User*'s October competition each received a copy of *Moon Cresta*. All well and good, except that they were all expecting a copy of *Boulder Crash*. Indeed, some of them already *had* copies of *Moon Cresta*. What went wrong? We still don't know. Blaby sent us a box of *Boulder Crashes* which never reached its destination. Can we get any more *Boulder Crashes* right now? We cannot. Not for love nor money.

We will be putting the situation right as soon as we can. In the meantime, if anybody wants to swop their copy of *Boulder Crash* for a *Moon Cresta* or even a *Frankie*, drop us a line.

Compusense new address

COMPUSENSE have moved from their old premises in Palmers Green to a new address. They can be reached at the same box number, P O Box 169, but now at 68a Willoughby Lane, London N17. Their new telephone number will be 01 885 3300.

Money for something

TWO nineteen year old twin brothers from Trowbridge, Wilts, have started their own software publishing business with a £40 a week grant from the Manpower Service Commission's Enterprise Allowances Scheme.

Philip and Andrew Oliver started buying computers five years ago, and quickly hit on the idea of trying to make money from their hobby. When they left school in 1986 they already had a fund of programming experience, and started to develop their games in earnest. Their first game, *Super Robin Hood*, earned them enough to join the ESA, for which they needed £1000 to invest in their business. *Super Robin Hood* has now sold over 11,000 copies and their next game, *Ghost Hunters* is already selling well.

Anyone who has been unemployed for more than eight weeks, who can prove that they have a new business idea and access to £1000, can apply to join the EAS at their local Jobcentre. The allowance pays £40 a week for one year, as long as the business continues, to help new business ventures of get off the ground.

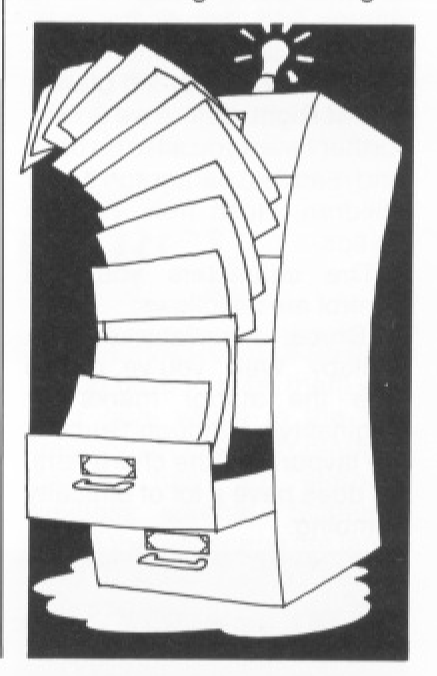
Unfortunately, nobody has yet opted to convert these games for the Dragon.

Horse help

CAN we have a volunteer to review *Predictor*, a program which claims to help you work out how to win on the horses? A hardened gambler, preferably. No, we won't reimburse your losses. Our regular reviewers say its enough of a gamble waiting for their cheques every month. Ed.

Reader notice

WE publish readers' addresses on our letters pages, unless requested otherwise, to allow users to contact each other directly. These addresses are sometimes added to the mailing lists of Dragon suppliers. While this can be to the advantage of all concerned, the commercial use of addresses taken from Dragon User does not imply that Dragon User has any connection with the businesses concerned, and normal caution should be excercised when dealing with any unfamiliar company from whom direct mail is received.



Missing persons

Please would contributors D. King and R. Andrews get in touch.

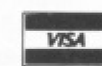
The editor would also like to hear from the gentleman who contacted her about shared use of a noticeboard before Christmas.

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Dragonsoft

Terrific Tangle Triumph

Program: *Tanglewood*
Supplier: Microdeal
Price: £5.95

TANGLEWOOD is one of those rarities, an adventure game that successfully doubles as an arcade game. This may not mean much to you, but to the Editor it means a dilemma every time a letter comes in asking for help on it. Does she send it to the Expert, or Mr. Gerrard, or does she just auction it off to the highest bidder?

That it is an adventure is irrefutable. The aim is to get Beanbag to say the spell that will turn him from his now froggy state back to the majesty of his liondom and defeat the evil Schark, the property designer who has plans for the peaceful glade of Tanglewood.

This is the game that was going to be based on the kids' TV show *Willo The Wisp*, but for several reasonss too complex and/or boring to mention, has materialised in this form. Before I go any further, let me say that it's a great game, destined to become a Dragon classic; I haven't finished it yet, and I've had help from the author.

In the game you have control of five characters, although when the game starts only four of them are around, the first problem being to get the dog back! The characters are controlled via the cursor keys and moved around on the scrolling map at the bottom of the screen, which gives rise to control a bit like the arcade game *Tutankhamen*. The map however is only visible during the day, and at night you have to rely on your memory (or your own map!). Which brings me to a point that I forgot to mention, which is that the game is in real time, and you have a time limit. After ten days, Schark's bulldozers arrive and Tanglewood becomes an office block/car park/bingo hall (delete as appropriate).

The screen is set out with the aforementioned (and very graphic) map at the bottom, a picture of the character that the player is controlling (yes, yes I'll get to them in a minute), a picture of the location the character currently being used is currently occupying (literally a bit of the map), a cursor to input conventional adventure commands and room for the responses to those commands, an inventory for the current character, an indicator to show that character's energy and an indicator to its status (ie safe, invulnerable to Schark's spells, or left blank). Phew! Right, before we go any further I want you all to go back and read that paragraph again children. Hush now. Fingers on lips.

The characters you can control are as follows:

1) Bruce, a wallaby. (Yep, a wallaby. Well, you've got to give the author marks for originality!) Although Bruce is my favourite of the characters, he does have a lot of difficulty climbing.

2) Goliath, a mouse who lost his whiskers in a previous encounter with Schark. This means that he needs a new set, and even when you know where they are and how to get them, and I know both, you still can't get the damn things.

3) Beanbag, once a lion, now a frog. And what's worse is that there are no princesses around to kiss him!! Beanbag moves on the rivers, marshes and swamps, while the others move on the paths. However, at night he can get onto the paths which is useful as his touch can free any of the creatures turned to stone by Schark (a fate from which he is apparently immune, although I wasn't going to stick around and find out.) However, there's a catch. The longer he stays as a frog, the weaker his touch becomes until you have to do other things to get your characters back. Ah now, that would be telling!

4) Foghorn, described by the author as a 'cat of considerable abilities', but he hasn't made them apparent to me! And, without his specs, he can't see in the dark. (I don't know if he's any better without them, they're at the bottom of a pond and I can't get them out.)

5) Peabody, a dog who, as already mentioned, needs some edible encouragement to come home.

There are two other characters in the game, moving independently on the main map, the first being Schark himself. He moves around Tanglewood during the day (no doubt with a team of architects and building consultants) and, as also mentioned, turns anyone he touches to stone. However, he rests at night (yep, that's when he can't see the map). The last character is on your side.

There's no 'Help' option in the game, but Owl, if you can get to him, will give a lot of useful advice from his wisdom.

Well, that's the main play area described. Now on to all the other bits. There are several little text only mazes, all with an essential location within them (as with all the best mazes).

Then there's the Dwarf Dive. Now only some of the characters can get in here, but when they do we are treated to a nice little ladders and walkways game which needs no less than three characters to go in and out for it to be solved! It's patrolled by rather nasty robots which make it even more infuriatingly hard than it is already.

Finally, there's Castle Schark. This is the pretentious 3D, five level castle that Schark inhabits, and it can only be entered when a character is impervious to Schark's speels. The key is in there somewhere. (I think.)

Right, that's the game. Now onto the features that make it not just a great adventure but a really great one.

There are several special commands which I must skip over before summing up: 'Time' changes day into night or vice versa, 'Transfer' allows characters to pass objects to each other, 'Look' or '?' gives a description of the current location, 'Search' allows you to turn on an automatic 'Look' at every location, and 'Hold' is an excellent feature which allows you to save game to memory.

Then, when you quit, the game starts again from where you last typed 'Hold'. The game does, of course, support tape 'Save' and 'Load', and this feature has never loet me down with perfect loading every time.

Finally, there is an option to hold the bulldozers off for an extra two weeks.

This option also keeps Schark tied up 'in board meetings' for the first 24 hours of the game, allowing the characters relative freedom.

A few playing hints. Get the characters to work in teams, passing objects to each other, so that their energy never gets too low to make a run to home when things get dicey with Schark.

Get to every location you can — necessary objects are often just lying around in the open. Every object has a use. Try not to use search — there is a tendency, when it's on, not to bother to read it!

To sum up then, this is an excellent game, very hard, but progressive, ie the problems flow nicely, the plot works, and the added elements like Dwarf Dive and Castle Schark complement the game.

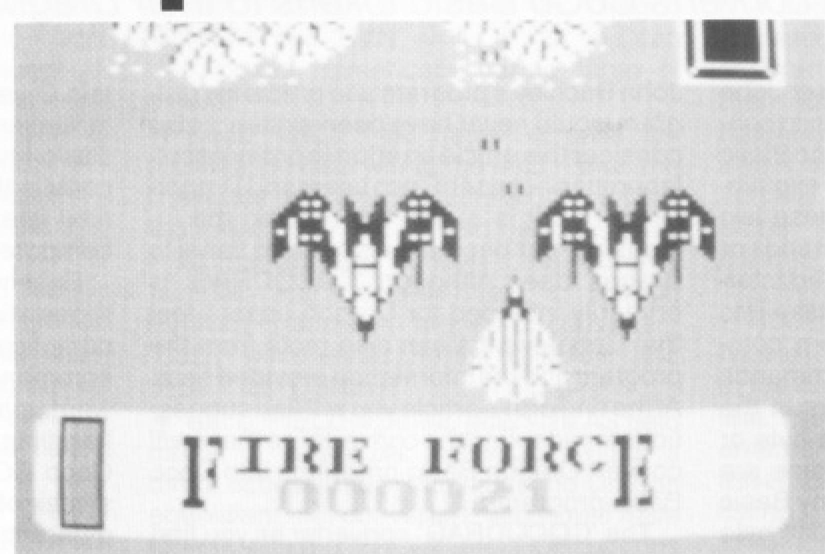
This game deserves to be as popular as *Juxtaposition*, and that must be the highest recommendation an adventure can get.

Jason Orbaum



Program: *Fire Force*
Supplier: Quickbeam
Price: £9.95

A quick round of Fire



QUICKBEAM's new all-action arcade game *Fire Force* held my attention as soon as it started loading, thanks to the somewhat strange loading system employed, which loads the title page as a series of two diagonal stripes! Although this is a little reminiscent of some of the Spectrum loading routines, it does seem to be slightly quicker than the normal method.

Having loaded the game, the next thing that strikes you is the music. This has been implemented using the Advanced Music System (AMS) from Chris Jolly, who also composed the music itself (very Pink Floydish).

The object of the game is to lead your crack team of commandos across enemy held territory to retrieve the 'Spirit' fighter plane that has been stolen by the enemy. If you can tear yourself away from the music long enough to attempt this perilous task you will find that the enemy troopos that occupy the jungle you must traverse are every bit as crack as yours are. However, the treck through the jungle *is* possible, and requires quick thinking and a very quick joystick and fire-button. Unlike a lot of arcade games, simply blasting away indiscriminately will not allow you an easy way through; careful selection of each shot seems to be the order of the day.

Having managed to get to the captured fighter, you are faced with the perilous flight home. Enemy planes will do their best to prevent you from doing this. The enemy planes are represented by what must be the largest 'sprites' I have ever seen on the Dragon, and despite their annoying tendency to fire air-to-air missiles at you, they can be beaten so that you can return to base for a hero's welcome.

The game is entertaining and a lot of care has obviously gone into the writing. There is little financial reward to be had for writing Dragon programs these days, and so most programs are written out of enthusiasm. Dave 'Gibbo' Gibbons is obviously a real Dragon enthusiast. I hope this program gets the recognition it deserves.

The game deserves 5/5 although I think the price is too steep at £9.95. The current trend is to lower prices, not raise them!

Roy Coates



THIS title is the followup to the immensely popular *Shaolin Master*, which took the art of joystick contortionism to new extremes and therefore this game obviously has a lot to live up to — even more so with a price tag on it of just under a tenner.

After a rather odd loading process and a detailed screen at the end of the loading, a crescendo of music bursts forth from the normally restrained Dragon. The music is good throughout, not just a collection of bleeps acquired from the play command, but a specially written piece.

Enough of the music, and on to the game itself, which is a development of the well trodden and oft abused 'shoot-em-up' theme. Here you must locate and then fly a prototype plane in a three stage game, which allows up to three little commandos for you to get blown into numerous small fragments.

Stage one has you all alone in a rain forest with only your trusty gun to keep you company.

All alone, that is, apart from a few hundred other enemy troops, all with the intent to do you serious damage.

You have to blast them with your gun, which in the true tradition of films and computer games has an eternally limitless arsenal. Scattered about the landscape are large, neat graphic palms, barbed wire and walls to hide behind or dodge past.

Dodging indeed could be the operative word in this game as the detection mechanism is to put it simply not very accurate, and to lose a life when a bullet is still well in front of you is disheartening, especially when one has just passed through your entire body without leaving as much as a scratch on your chunky graphic uniform.

If you complete this stage, then you progress to a similar second stage where you again shoot all and sundry, now along a causeway.

Finally, having found the plane in stage three, you fly it over the well drawn landscape adjusting height to get under bridges and collect power, and ultimately get back to base.

When you do get back I suppose you start all over again, although I can't verify this as I've never managed to get there — the game is simple in theory, but many men are lost in action.

When it comes down to it this is simply a hit and run game with a nice tune and aesthetic graphics, but it does have that 'One more go' addictive quality and is a difficult challenge for arcade fans with an itchy trigger finger.

Philip Stott



THE year is 1996 and the prototype IMFTC X18 'Spirit' attack plane has been stolen and hidden in Africa. Your mission is to find it and fly it home. Eight soldiers including you have been assigned to the job.

Phase 1

THIS phase is similar to the arcade game *Commando*. You begin just in fromt of a bridgeway with enemy solders all around. On this phase you have to find a certain place. When you find the place a message on the screen comes up which says uou have completed that phase.

Phase 2

ON this phase you have to run along a bridgeway in search of a runway. Along the bridgeway are enemy soldiers running and firing at anything that moves. The solders on this phase make this phase quite hard.

Phase 3

ON this phase you have to fly the Spirit X18 home. This is not as easy as it sounds. At the start of this phase you see a plane, which is quite large, but the enemy's is much larger but less nimble.

You have to fly under bridges, over buildings, avoid palm trees and the ground, while collecting power modules, and to stay airborne. An altimeter at the side of the screen is lifesaving in this game. This is probably the hardest phase of the game.

The game has excellent sound and quite good graphics. The sprites are unusually large for a Dragon computer game.

All praises go to the programmer for producing a brilliant sequel to *Shoalin Master*! Praises also go to Chris Jolly for the sound track. The only thing I hate about the game is on the first phases, where you can get stuck in the palm trees. Overall: recommended, go out and buy it!

David Linsley



Tandy/Dragon Basic Converter

Rudy Duyck converts CoCo Basic tokens to their Dragon equivalent

IN the December 1984 *Dragon User* John Buckley presented a Basic program to convert Dragon User programs into Coco Basic programs and vice versa. He also explained that the difference between these two Basics lies not in their actual commands or syntax but in the way they are coded internally. This is correct if you do not take into account the disc operating system commands, as we shall see. Basic commands are not stored as a string of letters in the computer's memory, but as a one-byte or two-byte 'token'. The two-byte tokens are needed because there are too many Basic commands for all the values that one byte can contain, which are moreover even more restricted because the value of the token byte should be higher than 127, since it would otherwise be recognised as an alphanumeric or graphics character by the Basic interpreter.

A two-byte token consists of a byte with value 255 and another with a value higher than 127. For more detailed information I refer you to John Buckley's article and to any good book on the Dragon, especially, of course, Duncan Smeed and Ian Summerville's *Inside the Dragon*. The Dragon and the Coco use different tokens for most commands, which explains why you cannot run Coco Basic programs on the Dragon as they are and vice versa. You get two lists of both the Dragon and the Coco tokens, one sorted alphabetically on the Basic commands, one sorted numerically on the tokens.

Flexible conversation

One solution to the problem of exchanging programs is to save a Basic program written on one machine in ASCII ('CSAVE "program",A') and load it in this format on the other machine. Sadly this soon becomes rather cumbersome if you want to exchange large numbers of programs. Since I am a member of a large 6809 users' group which has far more Coco owners than Dragon owners, this problem soon became evident, so I was rather happy to discover John Buckley's program in one of my old *Dragon User* issues. Unfortunately his approach has some major disadvantages, fine though his program may be. Since it is written in Basic the user has to go through the whole procedure of loading the converter and merge programs, merging the program to be converted, etc. each time he wants to make a conversion. Secondly, because you need RAM to store the Basic converter program in this puts restrictions on the length of the program you can convert. Thirdly, the author had no information on Dragon DOS and his program cannot convert Disc Basic tokens. This is why I decided to write a more flexible and more complete program in machine code. Nevertheless, I must emphasize that without John Buckley's program and article my program would never have been written. I also consider this article an effort to promote collaboration between Coco users and Dragon users and it is a result of reading the increasing number of letters by Coco users to Dragon User. Although 'COCODRAG' is primarily intended for Dragon users I feel that Coco owners can also profit from the program and the information provided here. At the end of this article you will find suggestions for adapting the converter so that it will convert Dragon Basic programs into Coco Basic programs.

The 'COCODRAG' converter as you find it here (in both an assembler listing and a Basic program which pokes in the object code) translates Coco Basic programs into Dragon Basic programs and resides in the first graphics page if you use Dragon DOS, in the second graphics page if you are a cassette user. This means that there are no restrictions on the length of the Basic program you want to convert and that there is no need to re-load 'COCODRAG' after each conversion. Do not test the resulting program though: if it should contain a PCLS instruction you would, of course, lose 'COCODRAG'! However, the converter is written in position independent code, ie it can be placed anywhere in available RAM, and if you prefer a different location for the converter or if you are a cassette user who needs to issue a PCLEAR1 to be able to load a really long Basic program, you can relocate 'COCODRAG' by loading it with an offset. The converter will not work in 64K mode since it uses a number of ROM routines, the addresses of which you find in the beginning of the assembler listing (thank you Brian Cadge!).

Another problem which my program tries to answer is that Basic programmers may hide machine code routines or graphic characters to be poked into the screen memory area in a string within a Basic program. In this case if the only thing a converter program does is look at each byte and see whether its value is higher than 127 and, if so, change it, then the converter will alter these hidden graphics of machine code routines, which may naturally contain codes which the converter would interpret as tokens. 'COCODRAG' will skip strings and will thus leave them virginal and untouched. Doing this proved to be less simple than I thought at first sight. An earlier version of the program ran wild while converting some programs because the programmers had not closed their strings with quotation marks (this is not absolutely necessary at the end of a Basic line). I could then test to see whether the end of the Basic line had been reached by checking for the O-byte signalling this, but this was impossible because the string contained machine code in some instances, and this could contain O-values. I solved this by using the information contained in the 'header' of each Basic line: the first two bytes of each line contain the address of the beginning of the next line. In this way I could quite simply compare addresses.

Expanding the converter to enable it to tackle disc Basic programs proved to be complicated too. Most non-file handling commands translate in a fairly straightforward manner, but the differences in file handling between the Dragon DOS and the Coco DOS are enormous. Moreover, the syntax of quite a number of commands is different. Identical in use, though not necessarily in name, are: BACKUP, COPY, DIR, DSKINI/DSKINIT, DSKI$/SREAD, DSKO$/SWRITE, DRIVE, KILL, RENAME and VERIFY. These tokens are converted by the program.

Differences

Minor though naturally important differences are:

- Tandy drives are numbered 0,1,2,3; Dragon drives 1,2,3,4 (although Dragon DOS V4.0 and V4.1 will accept 0 for the first drive); you will have to change the drive numbers in the program yourself
- 'FREE(drive)' in Coco Basic equals 'FREEdrive' in Dragon Basic (the 'FREE' will be converted but you will have to delete the brackets 'manually')
- Coco 'SAVEM "program", load, end, exec' equals Dragon 'SAVE "program", load, end, exec' ("COCODRAG" converts the 'SAVE' token but the 'M' will need to be deleted manually); Coco 'SAVE "Basic"' equals Dragon 'SAVE "Basic"' but the Coco version has the ',A' (SAVE in ASCII format) option as does CSAVE in both Basics; this ',A' option, if present, will have to be deleted manually
- Coco 'LOAD "Basic"' equals Dragon 'LOAD "Basic"', but the Coco version has the ',R' option, which will cause the Basic program to run immediately after loading; here Dragon would quite simply 'RUN "Basic"'; Coco 'LOADM "program"' equals Dragon 'LOAD "program.BIN"', but whereas the Coco user can specify an offset which will be added to the load address of the binary file, the Dragon user can specify the absolute address at which the file must be loaded (the token will be replaced, but the Coco 'M' in 'LOADM' will have to be deleted and the Dragon '.BIN' added, and the options will have to be adapted)
- Coco 'CLOSE £buffer' operates on disk buffers or on all open files, whereas Dragon 'CLOSE drive' operates on all open files on a specified drive or on the default drive; Coco 'UNLOAD drive' has the same function as Dragon 'CLOSE drive' ("COCODRAG" will replace both Coco 'CLOSE' and 'UNLOAD' with Dragon 'CLOSE'; the rest of the syntax will have to be adapted by hand)

• Coco 'EOF(buffer)' operates on buffers and returns O if there is more data to be read in the buffer and -1 if there is no more data in it; Dragon 'EOF("file")' works on files and returns O if there is no more data, -1 if there is (the EOF token will be replaced, but the syntax not)

• Coco 'LOC(buffer)' and 'LOC(buffer)' again work with buffers and refer to record numbers (current and highest respectively), whereas Dragon 'LOC "datafile"' and 'LOF "datafile"' work on files and refer to the address of a byte; additionaly the Dragon 'LOF' works on any file, not just a data file (the tokens are replaced, the syntax is not adapted)

• Coco 'MERGE "Basic"' equals Dragon 'MERGE "Basic"' but the Coco version has the same ',R' option as 'LOAD' has; moreover, in Coco DOS the program on disc to be merged must have been saved in ASCII (the token is changed, the option must still be dealt with if present)

• Coco 'RUN "Basic"' equals Dragon 'RUN "Basic"' but has an option, ',R', which will keep all open files open; the Dragon 'RUN' also works with machine code programs, I am not sure it does in the case of the Coco; Dragon 'CHAIN' is related to the ',R' option, but retains the values of variables (token replaced, option not changed if present)

• Coco 'WRITE # buffer, data' and 'PRINT # buffer, data' write data to a buffer but find a relatively close equivalent in Dragon 'FWRITE "file"; data' (notice the semicolon instead of the comma before the data list); Coco 'PRINT' can also print data with the USING format, the data must be separated by a comma or a semi-colon; Coco 'WRITE' data need to be separated by a comma; Dragon 'FWRITE' data are separated by a comma and can be written 'FROM' a specific place in the file, 'FOR' a specific length ('FWRITE "file", FROM a, FOR b; variable list'; 'COCODRAG' replaces the Coco 'WRITE' token with the Dragon 'FWRITE' token but could not do so in the case of the Coco 'PRINT' token, which will appear as Dragon 'PRINT', since all 'PRINT' tokens would have become 'FWRITE' tokens, including the non-disc ones; the rest needs to be adapted manually.

Commands

Although you may get the impression that 'COCODRAG' leaves more unchanged than changed, if you look carefully you will see that most disc Basic programs that do not work with data files can be readily transformed with a very limited amount of editing by hand. Coco programs that deal with data files, however, are more difficult to convert.

The Coco handles both direct access and serial files, like the Dragon, but works with buffers which are opened and allocated and allows the user to refer to a record by its number. It is impractical to convert the tokens of the commands not mentioned above for various reasons, as we shall see. Nevertheless, for the patient and diligent converters among you' I shall briefly present all the non-compatible and unconverted Coco and Dragon commands:

• Coco 'MKN$(number)' converts a number to a five-byte string for storage in a formatted disc file; Coco 'CVN(string variable)' converts a five-byte string produced by 'MKN$' back to the number it represents; neither has even a remote Dragon equivalent; the tokens are not converted; 'MKN$' will show as Dragon 'HIMEM' and 'CVN' as 'LOF', as you can see in the numerically sorted table of tokens

• Coco 'LSET field name = data' left justifies the data within the field name and truncates the right characters if the data is too long; Coco 'RSET field name = data' right justifies and truncates the data the reverse way; neither has a Dragon equivalent and both are left unconverted; 'LSET' will show as Dragon 'CREATE' and 'RSET' as 'DSKINIT'

• Coco 'FIELD # buffer, field size AS field name, ...' organizes the space within a direct access buffer into fields; no Dragon equivalent, not converted: you would have to work with the 'FROM' and 'FOR' options of 'FWRITE'; 'FIELD' will appear as Dragon 'BEEP'

• Coco 'FILES buffer, buffer size' reserves the specified number of buffers and the total number of bytes specified in 'buffer size'; no Dragon equivalent, not converted: you would probably have to work with 'CREATE'; 'FILES' will show as Dragon 'BOOT'

• Coco 'OPEN "mode", # buffer, filename, record length' opens a buffer (O = screen, -1 = tape recorder, -2 = printer, 1-15 = disk drive) in the mode specified ('I" = input of data from a sequential file, 'O" = output of data to a sequential file, 'D" = input or output of data from or to a direct access file); the record length needs to be mentioned only if the file is direct access; Dragon data files need not be opened nor, for that matter, created: this happens automatically when a data file is accessed; 'OPEN' will remain 'OPEN' in the converted listing

• Coco 'GET # buffer, record number' gets the next record or the record with the number specified and puts it in the buffer; such direct access is less simple on the Dragon: you would need to use the 'FROM' and 'FOR' options of the 'FREAD' command; 'COÇODRAG' does not convert this token since this would entail the changing of all non-disc GETs as well; 'GET' will remain 'GET'

• Coco 'INPUT # buffer, variable, ..., inputs data from the specified buffer; on the Dragon this would become 'FREAD' but 'COCODRAG' could not convert this without converting all the non-disc INPUTs; 'INPUT' will remain 'INPUT'

• Coco 'LINEINPUT # buffer, variable' inputs all the data up to an ENTER character from the specified buffer; in Dragon Basic this would become 'FLREAD', but again this could not be converted without converting all the non-disc LINEINPUTs; 'LINEINPUT' will remain 'LINEINPUT'

• Coco 'PUT # buffer, record number' assigns a record number to the data in the buffer; no Dragon equivalent; 'PUT' will remain 'PUT'

• Dragon commands without a Coco equivalent are: AUTO, BEEP, BOOT, CHAIN, CREATE, ERL, ERR, ERROR, FRE$, FROM, HIMEM, PROTECT, SWAP, WAIT, FREAD and FLREAD.

All the non-converted tokens and indeed any token error spotted by 'COCODRAG' will be signalled to the user by the ERROR routine, and the screen will show both the line and the address in which the error occurred. However, the PRINTs, GETs, PUTs and similar cases will be converted to their non-disc Basic equivalents and will naturally not be signalled to the user as errors, so watch out! The program does not actually change the tokens with values below 142, since these have the same meaning in both Coco and Dragon Basic. This saves some processing time.

How do you use 'COCODRAG'? You can type in the Basic loader and use this to poke in the hex values of the object code line by line. The loader will check whether the data entered are correct. If you have an assembler you can type in the source code listing written with Diskdream. The assembled or poked in code can be saved to tape with CSAVEM 'COCODRAG', &HCOO, &HDEA, &HCOO, or to disc with SAVE 'COCODRAG', &HCOO, &HDEB, &HCOO if you have DOS V1.O, or with SAVE 'COCODRAG', &HCOO, &HDEA, &HCOO if you have DOS V4.O or V4.1.

Assembler listing

You can load your Basic program to be converted and 'COCODRAG' in any order you like, and there is no need to reserve space for 'COCODRAG', since it resides in a graphics page. When both have been loaded you simply EXEC the converter and 'COCODRAG' will keep you informed of which line number it is converting. This of course slows down the conversion process, but I feel that it is rather silly to sit staring at a blank and unmoving screen, so, you get the counter to idle away the seconds! After the 'CONVERSION COMPLETE' message you can SAVE the converted listing of no errors have occurred, or edit out the errors or unconverted Coco commands as necessary.

The assembler listing can be adapted to convert Dragon Basic programs into Coco Basic program. To do this you will need to change six lines in the assembler listing: the two lines under 'YES: SINGLE-BYTE TOKEN FOUND' should become:

OC68 318DOO97 LEAY TOKEN1+1,PCR
OC6C 1OAC8DO130 TK1LP CMPY TOKEN2+1,PCR

The fourth line after that becomes:

OC77 A63D LDA -3,Y

The line after 'YES: DOUBLE-BYTE TOKEN FOUND' is changed into:

OC7D 318DO120 CONT2 LEAY TOKEN2+1, PCR

and the second and sixth lines after that become:

OC83 1OAC8DO163 TK2LP CMPY TABEND+1,PCR
OC8E A63D LDA -3,Y

Of course, the Dragon commands that have no equivalent in Coco Basic will not be converted, and some of the Dragon disc commands will be converted into the wrong Coco command for the reasons explained above. The people who have no assembler

available should be able to find the new bytes to be poked in by comparing the original assembler listing with the adapted one (the object code is the second column in the assembler listing, the first is the address at which the code is stored).

I shall answer any questions you might have if you include a self-addressed envelope and one International Reply Coupon if you live in the EEC or two if you live outside it. If you feel daunted by the task of typing in the listing I can provide a cassette with the assembled program and some Coco programs to try it out on, provided you send me £3.50 by International Money Order (no cheques please: the bank deducts all its costs from the sum paid, leaving almost nothing of a small sum remitted this way). My address is: Rudy Duyck, Abdijbekestraat 8 — C2, B-8200 Brugge 2 (St.-Andries), Belgium.

```
3A99                ********************************
3A99                *                              *
3A99                * CONVERTS  COCO BASIC PROGRAM *
3A99                * TO  DRAGON BASIC PROGRAM AND *
3A99                * WARNS IF "TOKEN" NOT CHANGED *
3A99                *                              *
3A99                * COPYRIGHT RUDY DUYCK 26.5.86 *
3A99                *                              *
3A99                ********************************
3A99                ********************************
3A99                * TABLE OF SYSTEM VARIABLES AND*
3A99                *         ROM ROUTINES         *
3A99                ********************************
0C00  0C00                 ORG    3072
0C00                       PUT    3072
0C00  BA77          CLS    EQU    47735
0C00  0088          CURS   EQU    136
0C00  A0EA          CURWT  EQU    41194
0C00  90E5          OUTSTR EQU    37093
0C00  957A          NRPRNT EQU    38266
0C00  0019          BASBEG EQU    25
0C00  001B          BASEND EQU    27
0C00  BAA0          BEEP   EQU    47776
0C00  008C          PITCH  EQU    140
0C00                ********************************
0C00                *                              *
0C00                *        MAIN PROGRAM          *
0C00                *                              *
0C00                ********************************
0C00                ********************************
0C00                *        SET UP SCREEN         *
0C00                ********************************
0C00 BDBA77         @TEXT  JSR    CLS       ;INITSCRN
0C03 308D00B1              LEAX   CONV-1,PCR
0C07 BD90E5                JSR    OUTSTR
0C0A 308D00B6              LEAX   START-1,PCR
0C0E BD90E5                JSR    OUTSTR
0C11 DC19                  LDD    BASBEG
0C13 BD957A                JSR    NRPRNT
0C16 308D00B3              LEAX   EIND-1,PCR
0C1A BD90E5                JSR    OUTSTR
0C1D DC1B                  LDD    BASEND
0C1F 830001                SUBD   #1
0C22 BD957A                JSR    NRPRNT
0C25 308D00AC              LEAX   LINE-1,PCR
0C29 BD90E5                JSR    OUTSTR
0C2C                ********************************
0C2C                * LOAD START ADDRESS OF PROGRAM*
0C2C                ********************************
0C2C 9E19           INIT   LDX    BASBEG    ;STARTADDR
0C2E                ********************************
0C2E                * MAIN LOOP:  LINE  BY  LINE   *
0C2E                * ADDRESS NEXT LINE IS SAVED   *
0C2E                * LINE  NUMBER  IS  PRINTED    *
0C2E                ********************************
0C2E 10AE84         LINELP LDY    ,X        ;LDADNXTLN
0C31 10AF8D00CA            STY    NXTLIN,PCR ;SAVEAD
0C36 3004                  LEAX   4,X       ;REAL BYTE
0C38 9C1B                  CMPX   BASEND    ;END PROG?
0C3A 2458                  BHS    END       ;YES:END
0C3C EC1E                  LDD    -2,X      ;NO:LDLNNO
0C3E CE04A6                LDU    #1190     ;CURSORPOS
0C41 DF88                  STU    CURS
0C43 3410                  PSHS   X         ;SAVE X
0C45 BD957A                JSR    NRPRNT    ;PRTLINENO
0C48 3510                  PULS   X         ;RESTORE X
0C4A                ********************************
0C4A                * SECOND LOOP:  BYTE BY BYTE   *
0C4A                * CHECK  FOR END OF LINE (0)   *
0C4A                * AND   FOR   STRINGS   (")    *
0C4A                ********************************
0C4A A680           LOOP   LDA    ,X+       ;LOAD BYTE
0C4C 27E0                  BEQ    LINELP    ;ENDLN?YES
0C4E 8122                  CMPA   #34       ;NO:STRNG?
0C50 260E                  BNE    CONT      ;NO:CONTIN
0C52                ********************************
0C52                *   LOOK FOR END OF STRING:    *
0C52                *    ---) SECOND ("), OR       *
0C52                *    ---) END OF LINE          *
0C52                ********************************
0C52 A680           STRLP  LDA    ,X+       ;YES:NEXT
0C54 8122                  CMPA   #34       ;ENDSTRNG?
0C56 27F2                  BEQ    LOOP      ;YES:NEXT
0C58 AC8D00A4              CMPX   NXTLIN,PCR ;ENDLN?
0C5C 27D0                  BEQ    LINELP    ;YES:NXTLN
0C5E 20F2                  BRA    STRLP     ;NO:SEARCH
0C60                ********************************
0C60                * CHECK WHETHER TO CHANGE BYTE *
0C60                ********************************
0C60 818E           CONT   CMPA   #142      ;CHANGE?
0C62 25E6                  BLO    LOOP      ;NO:NEXT
0C64 81FF                  CMPA   #255      ;YES:2BTS?
0C66 2715                  BEQ    CONT2     ;YES:BRNCH
0C68                ********************************
0C68                * YES: SINGLE-BYTE TOKEN FOUND *
0C68                ********************************
0C68 318D0096              LEAY   TOKEN1,PCR ;NO:1BT
0C6C 10AC8D012F TK1LP      CMPY   TOKEN2,PCR ;ENDTB?
0C71 2728                  BEQ    ERROR     ;YES:NTFND
0C73 A1A1                  CMPA   ,Y++      ;NO:FOUND?
0C75 26F5                  BNE    TK1LP     ;NO:NEXT
0C77 A63F                  LDA    -1,Y      ;YES:CHNG
0C79 A71F                  STA    -1,X      ;   TOKEN
0C7B 20CD                  BRA    LOOP      ;NEXTBYTE
0C7D                ********************************
0C7D                * YES: DOUBLE-BYTE TOKEN FOUND *
0C7D                ********************************
0C7D 318D011F   CONT2      LEAY   TOKEN2,PCR ;2BTTKN
0C81 A680                  LDA    ,X+       ;LOADBYTE
0C83 10AC8D0162 TK2LP      CMPY   TABEND,PCR ;ENDTB?
0C88 2711                  BEQ    ERROR     ;YES:NTFND
0C8A A1A1                  CMPA   ,Y++      ;NO:FOUND?
0C8C 26F5                  BNE    TK2LP     ; NO:NEXT
0C8E A63F                  LDA    -1,Y      ; YES:CHNG
0C90 A71F                  STA    -1,X      ;  TOKEN
0C92 20B6                  BRA    LOOP      ;NEXTBYTE
0C94                ********************************
0C94                * END OF BASIC PROGRAM REACHED *
0C94                ********************************
0C94 308C52         END    LEAX   ENDMSG-1,PCR ;INIT
0C97 BD90E5                JSR    OUTSTR       ;PRTTEXT
0C9A 39                    RTS                 ;ENDCONV
0C9B                ********************************
0C9B                *  BYTE SEEMS TO BE TOKEN BUT  *
0C9B                *  CAN'T BE TRANSLATED: ERROR  *
0C9B                ********************************
0C9B 3410           ERROR  PSHS   X         ;SAVE X
0C9D C614                  LDB    #20       ;SOUND
0C9F D78C                  STB    PITCH
0CA1 BDBAA0                JSR    BEEP
0CA4 308C36                LEAX   ERRMSG-1,PCR ;INIT
0CA7 BD90E5                JSR    OUTSTR       ;PRTTEXT
0CAA 1F10                  TFR    X,D       ;LOAD ADDR
0CAC 830001                SUBD   #1        ;    ERROR
0CAF BD957A                JSR    NRPRNT    ;PRNT ADDR
0CB2 BDA0EA                JSR    CURWT     ;WAITFRKEY
0CB5 3510                  PULS   X         ;RESTORE X
0CB7 2091                  BRA    LOOP      ;NEXT BYTE
0CB9                ********************************
0CB9                *       VARIOUS MESSAGES       *
0CB9                ********************************
0CB9 0D636F6E76 CONV       FCC    13,'converting',0
0CC5 0D0D535441 START      FCC    13,13,'START ',0
0CCE 0D454E4420 EIND       FCC    13,'END    ',0
0CD6 0D4C494E45 LINE       FCC    13,'LINE   ',0
0CDE 0D0D657272 ERRMSG     FCC    13,13,'error IN ',0
0CEA 0D0D636F6E ENDMSG     FCC    13,13,'conversion '
0CF7 636F6D706C            FCC    'complete',0
```

```
0D00                ********************************
0D00                * STORAGE FOR ADDRESS NEXT LINE*
0D00                ********************************
0D00                NXTLIN RMB    2
0D02                ********************************
0D02                *SINGLE-BYTE TOKENS:COCO/DRAGON*
0D02                ********************************
0D02 8E8F8F90       TOKEN1 FCC    142,143,143,144
0D06 90919192              FCC    144,145,145,146
0D0A 92939394              FCC    146,147,147,148
0D0E 94959596              FCC    148,149,149,150
0D12 96979799              FCC    150,151,151,153
0D16 989A999B              FCC    152,154,153,155
0D1A 9A9C9B9D              FCC    154,156,155,157
0D1E 9C9E9D9F              FCC    156,158,157,159
0D22 9EA09FA1              FCC    158,160,159,161
0D26 A0A2A1A3              FCC    160,162,161,163
0D2A A2A4A3A5              FCC    162,164,163,165
0D2E A4BBA5BC              FCC    164,187,165,188
0D32 A6BDA7BF              FCC    166,189,167,191
0D36 A8C0A9C1              FCC    168,192,169,193
0D3A AAC2ABC3              FCC    170,194,171,195
0D3E ACC4ADC5              FCC    172,196,173,197
0D42 AEC6AFC7              FCC    174,198,175,199
0D46 B0C8B1C9              FCC    176,200,177,201
0D4A B2CAB3CB              FCC    178,202,179,203
0D4E B4CCB5A6              FCC    180,204,181,166
0D52 B6A7B7A8              FCC    182,167,183,168
0D56 B8A9B998              FCC    184,169,185,152
0D5A BA8EBBAA              FCC    186,142,187,170
0D5E BCABBDAC              FCC    188,171,189,172
0D62 BEADBFAE              FCC    190,173,191,174
0D66 C0AFC1B0              FCC    192,175,193,176
0D6A C2B1C3B2              FCC    194,177,195,178
0D6E C4B3C5B4              FCC    196,179,197,180
0D72 C6B5C7B6              FCC    198,181,199,182
0D76 C8B7C9B8              FCC    200,183,201,184
0D7A CAB9CBBA              FCC    202,185,203,186
0D7E CCBECDCD              FCC    204,190,205,205
0D82 CED5CFD6              FCC    206,213,207,214
0D86 D2DBD3DC              FCC    210,219,211,220
0D8A D5DDD6E0              FCC    213,221,214,224
0D8E D8E1D9D9              FCC    216,225,217,217
0D92 DAE4DB9C              FCC    218,228,219,156
0D96 DCD7DDCF              FCC    220,215,221,207
0D9A DED3DFE2              FCC    222,211,223,226
0D9E E0E3                  FCC    224,227
0DA0                ********************************
0DA0                *DOUBLE-BYTE TOKENS:COCO/DRAGON*
0DA0                ********************************
0DA0 80808181       TOKEN2 FCC    128,128,129,129
0DA4 828283A1              FCC    130,130,131,161
0DA8 84848588              FCC    132,132,133,136
0DAC 868C878D              FCC    134,140,135,141
0DB0 888E898F              FCC    136,142,137,143
0DB4 8A908B91              FCC    138,144,139,145
0DB8 8C928D93              FCC    140,146,141,147
0DBC 8E968F97              FCC    142,150,143,151
0DC0 90989199              FCC    144,152,145,153
0DC4 929A939B              FCC    146,154,147,155
0DC8 948B9589              FCC    148,139,149,137
0DCC 968A9787              FCC    150,138,151,135
0DD0 98949986              FCC    152,148,153,134
0DD4 9A839B85              FCC    154,131,155,133
0DD8 9C959D9C              FCC    156,149,157,156
0DDC 9E9D9F9E              FCC    158,157,159,158
0DE0 A09FA1A0              FCC    160,159,161,160
0DE4 A3A3A4A7              FCC    163,163,164,167
0DE8 A5A2                  FCC    165,162
0DEA                ********************************
0DEA                *      END OF TOKEN TABLES     *
0DEA                ********************************
0DEA 00             TABEND FCC    0
```

```
10 'hexloader RUDY DUYCK 15.3.86
20 CLS
30 FOR I=&HC00 TO &HDEA STEP 10
40 T1=0
50 PRINTHEX$(I);": ";
60 INPUT H$
70 FOR J=1 TO LEN(H$) STEP 2
80 H=VAL("&H"+MID$(H$,J,2))
90 T1=T1+H
100 POKE I+INT(J/2),H
110 NEXT J
120 INPUT"CHECKSUM";T2$:T2=VAL
  ("&H"+T2$)
130 IF T1<>T2 THEN PRINT"ERROR:
  REDO":GOTO40
140 NEXT I
150 PRINT:PRINT"CONVERTER READY TO BE SAVED"
```

```
C00: BDBA77308D00B1BD90E5 = 59E
C0A: 308D00B6BD90E5DC19BD = 557
C14: 957A308D00B3BD90E5DC = 59D
C1E: 1B830001BD957A308D00 = 329
C28: ACBD90E59E1910AE8410 = 4E7
C32: AF8D00CA30049C1B2458 = 36D
C3C: EC1ECE04A6DF883410BD = 4EA
C46: 957A3510A68027E08122 = 424
C50: 260EA680812227F2AC8D = 44F
C5A: 00A427D020F2819E25E6 = 4C7
C64: 81FF2715318D009610AC = 3CC
C6E: 8D012F2728A1A126F5A6 = 40F
C78: 3FA71F20CD318D011FA6 = 376
C82: 8010AC8D01622711A1A1 = 3A6
C8C: 26F5463FA71F20B6308C = 458
C96: 52BD90E5393410C614D7 = 4B2
CA0: 8CBDBAA0308C36BD90E5 = 5C7
CAA: 1F10830001BD957ABDA0 = 3DC
CB4: EA351020910D636F6E76 = 3A3
CBE: 657274696E67000D0D53 = 2F6
CC8: 5441525420000D454E44 = 23F
CD2: 202020000D4C494E4520 = 1B5
CDC: 20000D0D6572726F7220 = 284
CE6: 494E20000D0D636F6E76 = 287
CF0: 657273696F6E20636F6D = 3EF
CFA: 706C6574650065008E8F = 39C
D04: 8F909091919292939394 = 5AF
D0E: 9495959696979799989A = 5E3
D18: 999B9A9C9B9D9C9E9D9F = 618
D22: 9EA09FA1A0A2A1A3A2A4 = 64A
D2C: A3A5A4BBA5BCA6BDA7BF = 6D1
D36: A8C0A9C1AAC2ABC3ACC4 = 71C
D40: ADC5AEC6AFC7B0C8B1C9 = 74E
D4A: B2CAB3CBB4CCB5A6B6A7 = 732
D54: B7A8B8A9B998BA8EBBAA = 6BE
D5E: BCABBDACBEADBFAEC0AF = 717
D68: C1B0C2B1C3B2C4B3C5B4 = 749
D72: C6B5C7B6C8B7C9B8CAB9 = 77B
D7C: CBBACCBECDCDCED5CFD6 = 7F1
D86: D2DBD3DCD5DDD6E0D8E1 = 87D
D90: D9D9DAE4DB9CDCD7DDCF = 846
D9A: DED3DFE2E0E380808181 = 737
DA4: 828283A184848588868C = 54F
DAE: 878D888E898F8A908B91 = 578
DB8: 8C928D938E968F979098 = 5B0
DC2: 9199929A939B948B9589 = 5C1
DCC: 968A9787989499869A83 = 5A6
DD6: 9B859C959D9C9E9D9F9E = 602
DE0: A09FA1A0A3A3A4A7A5A2 = 658
DEA: 00                   = 0
```

Token	Command		Token	Command		Token	Command	
	Coco	Dragon		Coco	Dragon		Coco	Dragon
128	FOR	FOR	177	OR	CIRCLE	226		SREAD
129	GO	GO	178	>	PAINT	227		SWRITE
130	REM	REM	179	=	GET	228		VERIFY
131	'	'	180	<	PUT	229		FROM
132	ELSE	ELSE	181	DEL	DRAW	230		FLREAD
133	IF	IF	182	EDIT	PCOPY	231		SWAP
134	DATA	DATA	183	TRON	PMODE	255 128	SGN	SGN
135	PRINT	PRINT	184	TROFF	PLAY	255 129	INT	INT
136	ON	ON	185	DEF	DLOAD	255 130	ABS	ABS
137	INPUT	INPUT	186	LET	RENUM	255 131	USR	POS
138	END	END	187	LINE	TAB	255 132	RND	RND
139	NEXT	NEXT	188	PCLS	TO	255 133	SIN	SQR
140	DIM	DIM	189	PSET	SUB	255 134	PEEK	LOG
141	READ	READ	190	PRESET	FN	255 135	LEN	EXP
142	RUN	LET	191	SCREEN	THEN	255 136	STR$	SIN
143	RESTORE	RUN	192	PCLEAR	NOT	255 137	VAL	COS
144	RETURN	RESTORE	193	COLOR	STEP	255 138	ASC	TAN
145	STOP	RETURN	194	CIRCLE	OFF	255 139	CHR$	ATN
146	POKE	STOP	195	PAINT	+	255 140	EOF	PEEK
147	CONT	POKE	196	GET	-	255 141	JOYSTK	LEN
148	LIST	CONT	197	PUT	*	255 142	LEFT$	STR$
149	CLEAR	LIST	198	DRAW	/	255 143	RIGHT$	VAL
150	NEW	CLEAR	199	PCOPY	^	255 144	MID$	ASC
151	CLOAD	NEW	200	PMODE	AND	255 145	POINT	CHR$
152	CSAVE	DEF	201	PLAY	OR	255 146	INKEY$	EOF
153	OPEN	CLOAD	202	DLOAD	>	255 147	MEM	JOYSTK
154	CLOSE	CSAVE	203	RENUM	=	255 148	ATN	FIX
155	LLIST	OPEN	204	FN	<	255 149	COS	HEX$
156	SET	CLOSE	205	USING	USING	255 150	TAN	LEFT$
157	RESET	LLIST	206	DIR	AUTO	255 151	EXP	RIGHT$
158	CLS	SET	207	DRIVE	BACKUP	255 152	FIX	MID$
159	MOTOR	RESET	208	FIELD	BEEP	255 153	LOG	POINT
160	SOUND	CLS	209	FILES	BOOT	255 154	POS	INKEY$
161	AUDIO	MOTOR	210	KILL	CHAIN	255 155	SQR	MEM
162	EXEC	SOUND	211	LOAD	COPY	255 156	HEX$	VARPTR
163	SKIPF	AUDIO	212	LSET	CREATE	255 157	VARPTR	INSTR
164	TAB	EXEC	213	MERGE	DIR	255 158	INSTR	TIMER
165	TO	SKIPF	214	RENAME	DRIVE	255 159	TIMER	PPOINT
166	SUB	DEL	215	RSET	DSKINIT	255 160	PPOINT	STRING$
167	THEN	EDIT	216	SAVE	FREAD	255 161	STRING$	USR
168	NOT	TRON	217	WRITE	FWRITE	255 162	CVN	LOF
169	STEP	TROFF	218	VERIFY	ERROR	255 163	FREE	FREE
170	OFF	LINE	219	UNLOAD	KILL	255 164	LOC	ERL
171	+	PCLS	220	DSKINI	LOAD	255 165	LOF	ERR
172	-	PSET	221	BACKUP	MERGE	255 166	MKN$	HIMEM
173	*	PRESET	222	COPY	PROTECT	255 167		LOC
174	/	SCREEN	223	DSKI$	WAIT	255 168		FRE$
175	^	PCLEAR	224	DSKO$	RENAME			
176	AND	COLOR	225		SAVE			

Command	Token		Command	Token		Command	Token	
	Coco	Dragon		Coco	Dragon		Coco	Dragon
'	131	131	FIELD	208		POKE	146	147
*	173	197	FILES	209		POS	255 154	255 131
+	171	195	FIX	255 152	255 148	PPOINT	255 160	255 159
-	172	196	FLREAD		230	PRESET	190	173
/	174	198	FN	204	190	PRINT	135	135
<	180	204	FOR	128	128	PROTECT		222
=	179	203	FRE$		255 168	PSET	189	172
>	178	202	FREAD		216	PUT	197	180
^	175	199	FREE	255 163	255 163	READ	141	141
ABS	255 130	255 130	FROM		229	REM	130	130
AND	176	200	FWRITE		217	RENAME	214	224
ASC	255 138	255 144	GET	196	179	RENUM	203	186
ATN	255 148	255 139	GO	129	129	RESET	157	159
AUDIO	161	163	HEX$	255 156	255 149	RESTORE	143	144
AUTO		206	HIMEM		255 166	RETURN	144	145
BACKUP	221	207	IF	133	133	RIGHT$	255 143	255 151
BEEP		208	INKEY$	255 146	255 154	RND	255 132	255 132
BOOT		209	INPUT	137	137	RSET	215	
CHAIN		210	INSTR	255 158	255 157	RUN	142	143
CHR$	255 139	255 145	INT	255 129	255 129	SAVE	216	225
CIRCLE	194	177	JOYSTK	255 141	255 147	SCREEN	191	174
CLEAR	149	150	KILL	210	219	SET	156	158
CLOAD	151	153	LEFT$	255 142	255 150	SGN	255 128	255 128
CLOSE	154	156	LEN	255 135	255 141	SIN	255 133	255 136
CLS	159	160	LET	186	142	SKIPF	163	165
COLOR	193	176	LINE	187	170	SOUND	160	162
CONT	147	148	LIST	148	149	SQR	255 155	255 133
COPY	222	211	LLIST	155	157	SREAD		226
COS	255 149	255 137	LOAD	211	220	STEP	169	193
CREATE		212	LOC	255 164	255 167	STOP	145	146
CSAVE	152	154	LOF	255 165	255 162	STR$	255 136	255 142
CVN	255 162	·	LOG	255 153	255 134	STRING$	255 161	255 160
DATA	134	134	LSET	212		SUB	166	189
DEF	185	152	MEM	255 147	255 155	SWAP		231
DEL	181	166	MERGE	213	221	SWRITE		227
DIM	140	140	MID$	255 144	255 152	TAB	164	187
DIR	206	213	MKN$	255 166		TAN	255 150	255 138
DLOAD	202	185	MOTOR	159	161	THEN	167	191
DRAW	198	181	NEW	150	151	TIMER	255 159	255 158
DRIVE	207	214	NEXT	139	139	TO	165	188
DSKI$	223		NOT	168	192	TROFF	184	169
DSKINI	220		OFF	170	194	TRON	183	168
DSKINIT		215	ON	136	136	UNLOAD	219	
DSKO$	224		OPEN	153	155	USING	205	205
EDIT	182	167	OR	177	201	USR	255 131	255 161
ELSE	132	132	PAINT	195	178	VAL	255 137	255 143
END	138	138	PCLEAR	192	175	VARPTR	255 157	255 156
EOF	255 140	255 146	PCLS	188	171	VERIFY	218	229
ERL		255 164	PCOPY	199	182	WAIT		223
ERR		255 165	PEEK	255 134	255 140	WRITE	217	
ERROR		218	PLAY	201	184			
EXEC	162	164	PMODE	200	183			
EXP	255 151	255 135	POINT	255 145	255 153			

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DR46

Invert the 64

I HAVE had a Dragon 64 computer for a number of years and use it to control my large record collection among other things. In the 32K mode I use a program (published in *Popular Computing Weekly* some years ago) which makes the computer print in inverse (green on black) which is much easier on the eye.

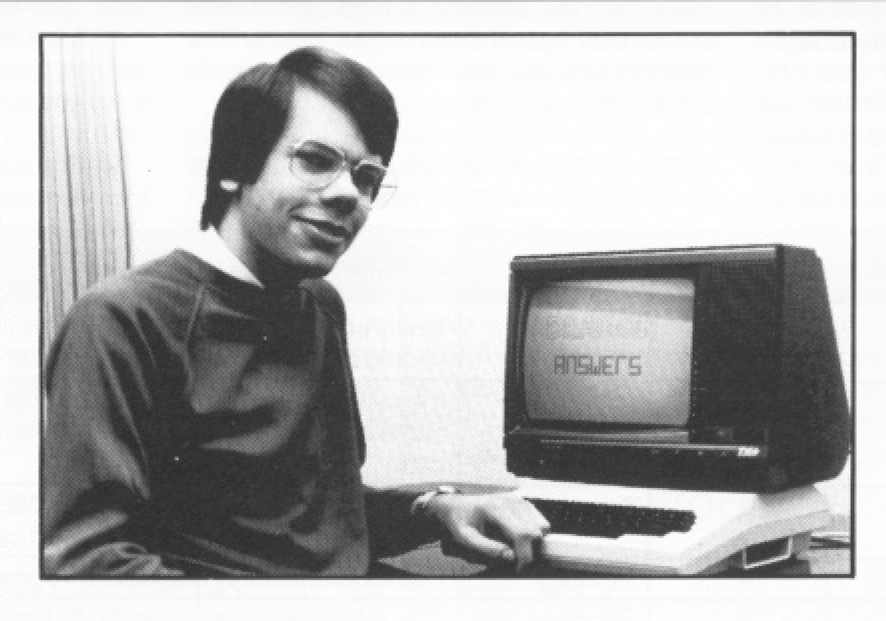
Unfortunately, this same program does not operate in 64K mode. Can you suggest why and perhaps provide a similar program for the 64?

John Carmel
Weoley Castle
West Midlands

THE program you are using probably makes some ROM calls and this is the reason it will not operate in 64 mode. As the Basic is in RAM in this mode it is possible to 'patch' it to print green on black which has the advantage of not using any extra memory.

Enter 64K mode and run the following Basic program which will patch the screen printing routine, as well as the CLS and checksum routines (so that pressing RESET does not reload the Basic from ROM). If you prefer orange on black, then just enter SCREEN 0,1 as the Basic is also patched to allow this.

```
10   POKE   59735,15
20   POKE   62659,32
30   POKE   63992,32
40   POKE   64423,32
50   POKE   64447,32
60   POKE   64470,8
70   POKE   64474,2
80   POKE   64475,128
90   POKE   64476,96
100  POKE   283,105
110  POKE   284,253
```



The right time

I AM writing my own database system in Basic and have come across the following problem. What I want to be able to do is tell the exact time of day so that may be saved at the head of filing along with the date. Is this possible from Basic or machine code as I don't think the Dragon has a built-in clock?

Paul Butcher
Wickford, Essex

THE Dragon does not have a built-in hardware clock, but the interrupt driver timer function can be used from Basic. If you incorporate the following routine in your program and call it with GOSUB 5000 (or wherever you put it) then it will return the current time of day in the variables HH,MM and SS. These are initialised by the user at the start of the program.

The routine works by updating the variables from the TIMER, which is incremented by 1 every 1/50th second.

```
10      INPUT "ENTER TIME OF DAY HH, MM, SS
20      TIMER=0
30      REM YOUR PROGRAM STARTS HERE...
5000    SX=INT(TIMER/50):TIMER=TIMER-SX*50
5020    IF SS>59 THEN HH=MM+1:SS=SS-1:GOTO 5020
5030    IF MM>59 THEN HH=HH=1:MM=MM-1:GOTO 5030
5040    IF HH>23 THEN HH=0
5050    RETURN
```

Keypad input

COULD you tell me if it is possible to use the joystick or printer port to connect up to a numerical keypad (of my own design) to be used as an input device in a sophisticated game I am currently working on.

Adrian Renshaw
Wednesbury
West Midlands

THE printer port cannot be used as this is set up as an output port in the Dragon's hardware configuration. The joystick ports are a/d (analogue to digital) devices, so you could wire up a keypad using a different resistance (between 0 — 100k) for each switch. For example, the first six switches on pot 0, and the next six on pot 1, the resistances going up in units of 10k each. You'll need to calibrate the keyboard (by reading the joystick value as you press each key) but as long as you don't need to read more than one key at a time this method should be quite successful.

The connections to the joystick ports are as follows:

Pin 1 — Input line (resistance) for pot 0
Pin 2 — Input line (resistance) for pot 1
Pin 3 — Ground (0 volts)
Pin 4 — Trigger input line
Pin 5 — +5 volts output.

Brief words

AT the moment, I am writing my own 'Trivia' game for my Dragon with disc drive. To get as many questions as possible on the one disc I want to use some text compression techniques. Do you know of a commercially available text compressor/expender, or could you explain in simple terms how to write one (in Basic) if this is possible?

Marion Keyes

I DO not know of a text compression program that is commercially available for the Dragon disc system. For trivia questions it should be fairly simple to write your own effective compressor.

Almost all questions start with words such as WHICH, WHAT, WHERE, WHO etc., and other words such as IN, ON, YEAR, etc. will come up regularly. If we substitute codes for these words in your strings then most questions and answers will fit into, for example, 128 characters.

A simple outline of a text compressor is given below I have not filled up the data statements to save space, but all you need to do is think of 128 commonly used words and enter them in the DATA lines from 540 onwards.

The routine takes the string passed in A$ and returns it 'parsed' (*Yor spelling's awful, Bri. — Ed.*) with compressed words replaced by the characters 128-255 (graphics characters). I leave it to you to write the de-compressor, which simply needs to replace the characters whose codes are >127 with the associated word.

```
500    REM Set up Array of words — this routine is only called
510    REM once at the start of the program.
520    CLEAR 5000
530    DIM W$(127):FOR I=0 to 127:READ W$(I):NEXT:RETURN
540    DATA WHICH, WHAT, WHERE, WHO, WHY, WHEN, YEAR
550    REM RESO OF DATA STATEMENTS HERE
1000   REM Compression routine takes A$ and returns it with
1010   REM common words replaced by codes 128-255
1020   CH=0
1030   FOR I=0 TO 127
1040   IF INSTR(A$,W$(I))=0 THEN 1080
1050   X=INSTR(A$,W$(I))
1060   A$=LEFT$(A$,X-1)+CHR$(128+I)+MID$(A$,X+1)
1070   CH=CH+1:GOTO 1090
1080   NEXT I
1090   IF CH>0 THEN 1020
1100   RETURN
```

Expert's Arcade Arena

Write to 'The Expert' at Dragon User 12-13 Little Newport St, London WC2H 7PP. with all your arcade tips and hints.

HELLO again, and just when you thought the special columns were over you find that we finish off the table we started last month. Now then, several of you, I know, will be wondering why we split it into two parts. There have been several theories expounded as to the reason for this but the most popular are here expounded for you to make a choice from:

Was it...A) I only wrote half of it last month and the other half this month.

B) Last month's edition of *Dragon User* was so packed with information that there simply wasn't room for all of it.

C) The magazine couldn't bear to pay me for three pages in the same month!

Name	Graphics	Speed	Type	Comment	Rating
The Dark Pit	3	3	Adventure	Vastly under-rated game by Gorden Twist, this one really should be provided with a free packet of asprin!	4
Wizard's Quest	4	3	Adventure	It's a shame that this game was a little dated when it came out. It's quite a challenge, if you like this kind of thing.	2
Shocktrooper	5	3	Adventure	The most popular arcade game of 1986 beyond a doubt, it's as good in 1987 as it was when it came out.	5
Cuthbert in the Mines	4	4	Strategy	Rather interestingly disguised *Frogger* clone.	2
Draconian	5	2	Shoot-em-up/ Collection	This is a game where it's actually fun to be killed. Graphically outstanding.	5
Robin Hood	2	3	Collection	A really jolly good pocket money thingy.	3
Jet Boot Colin	2	1-5	Collection	Another jolly good pocket money thingy.	2
Fearless Freddy	2	3	Collection	Yet another really jolly good pocket money thingy.	3
Rommel 3-D	3	5	Shoot-em-up	*Rommel's Revenge* for kill maniacs!	4
Laser Zone	3	3	Strategy	You've got to be fast, but you've also got to have a degree in maths!	3
Fantasy Fight	3	2	Adventure	This was the game that inspired *The Dark Pit* and it's a very good strategy game. It's slightly easier if you use the map of a few issues back.	3
Jet Set Willy	5	3	Collection	Can anyone tell me how to get back across the darden (right to left?) I've only done it once, and I don't know how I did it then.	5
Moon Cresta	4	3	Shoot-em-up	It was never as easy as this in the arcades!	3
Dark Star	3	4	Shoot-em-up	Well, the problem with this one is when you've destroyed one planet, you've destroyed them all.	2
Eddie Steady Go!	3	3	Collection	Has anyone got a hack to allow you to start at any screen yet?	4
Shaolin Master	4	3	Kung Fu	I've got a really great system for this one next month.	2
Chuckie Egg	3	4	Collection	Well wicked ancestor of *Manic Miner*, great fun, and all solutions to my address please.	4
Gordon Bennett	5	2	Collection	This one really is very, very difficult. For Experts only.	4
Ninja Warrior	2	3	Kung Fu	I appear to be one of the few people in the world who actually likes this game!	3

Well, answers on a postcard to the usual address, and while we're on the subject of writing and people who write in I have a sad announcement to make. Yes. Mick the Brave is dead, M.R. Vine passed away this month quietly, a noble man, if a bit of a scoundrel at times, he will be sorely missed. "How do you know he has died, oh great one?" I hear you spontaneously exclaim. Well, the fact is, at the time of writing I haven't had a letter from him for over a month so I can only assume that he really has passed away.

However Mick, if you're out there and feel like rèsponding to my subtle hint that maybe you need to buy a new pen perhaps you'd like to write, and also enter the following competition which, unlike previous competitions actually has a prize which is worth something!! Yes, the winner of this competition gets two games from the Editor's Magic Bottomless Box *(So called because whenever we look in it to see what's arrived for us, we look straight through — Ed. However, state your preferences if you win and we'll try and get'em for you.)* but remember, as far as winners are concerned, as Conner McLaud might say, there can be only one.

So here is the competition, and be warned, it's a toughie. To get the prize you must send in as many of the following things as possible. They can be acquired through the use of hacking, skilful games playing, general knowledge, and copying off each other's exam papers ... oops ... and the Tie-Breaker requires a certain creativity, or at least the ability to bluff. Because the competition is hard the deadline for entries is set quite late. All entries must reach me by the end of May, although overseas entries have an extra week on this. The winner will be announced in the July edition amid fireworks, too much to drink, and all the other things that usually accompany winners!!

Right then, where are the things I want, in no particular order:

1) The SIMPLEST way of getting infinite lives on *Kung Fu — The Master.*

2) The code which allowed you to enter the PRIZE draw in *Moon Cresta*.

3) What happens after the last screen in *Caverns of Chaos*.

4) A way of moving to any screen in *Eddie Steady Go!*.

5) A system or pattern for *Grabber.*

6) The names of the programmer(s) of EITHER Cascade's truly abysmal *Cassette 50* or Mastertronic's equally abysmal *Vegas Jackpot* (The Dragon versions, obviously).

The tie breaker which will be used if more than one person sends in all six answers (or if more than one person sends in the most answers, because for all I know, no-one knows all six, and it might be between everyone who knows three of them — so don't be discouraged!) is as follows, all I want you to do is complete this statement in a way which you think will appeal to me the most, from your knowledge of my deep and beautiful personality. *(I want to see these — Ed.)* You may send three entries for the tie

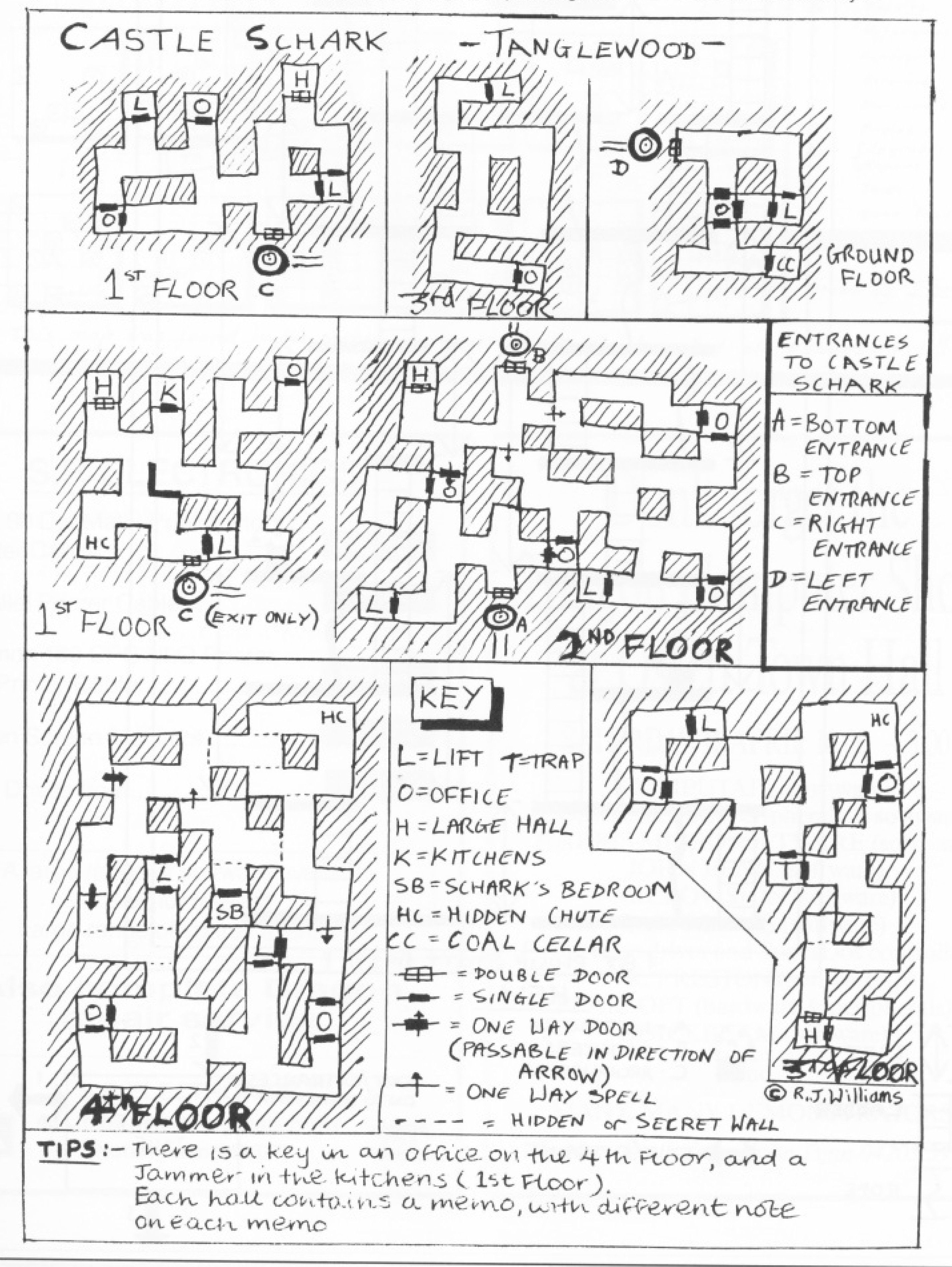
breaker but none may consist of more than fifteen words. The sentence I would like you to complete is 'The Expert is . . . ' Remember please when entering, that there are laws against libel and slander!!

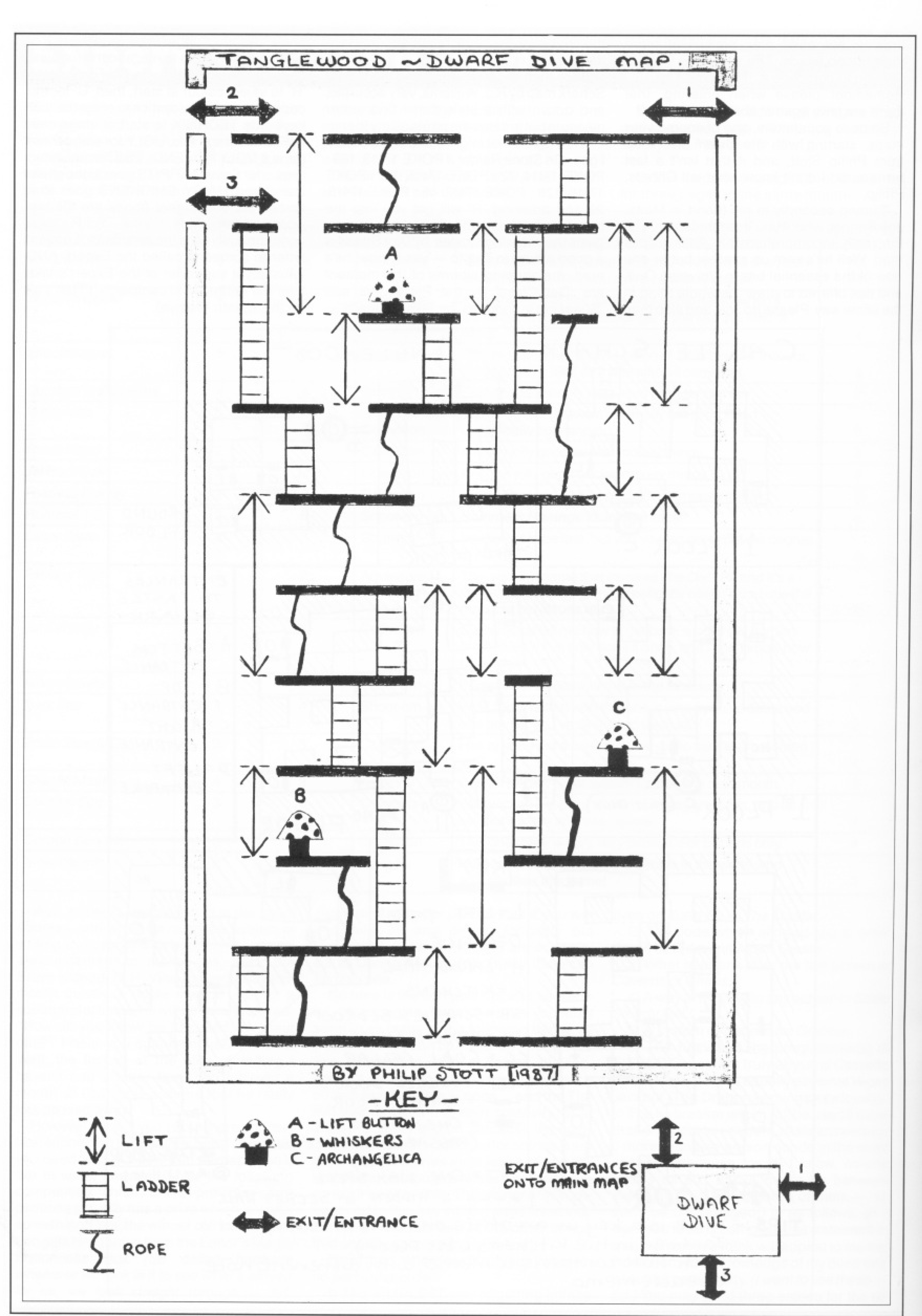
So on to your letters, and of course your maps, starting with the *Dwarf Dive* map from Philip Stott, and if that isn't a fast turnaround I don't know what is!! Cheers, Philip.

Turning secondly to my friend in Malta, Joe Brincat, who, if you'll remember sent us the really incomprehensible *Total Eclipse* map. Well he's sent us a rather better one now of the essential bits in Universe One, and has offered to draw the whole thing in the same way. Please do Joe, and also map the Universe Two, which you should have received by now.

Back then to *Tanglewood* and the Castle Schark map by R.J. Williams, very accurate, and drawn with a style that I find rather pleasant but irritates the pants off my friend.

A few pokes that might interest you before I go... On *Stone Raider II* POKE 17413, 189 : POKE 17414, 72 : POKE 17415, 179 : POKE 17416, 126 : POKE 17417, 46 : POKE 17418, 29 and pressing 'R' will get you into the cheat mode (that's from Phil Isles who suggests that 'Making Movies' by Dire Straits is a good album to Zap to — yes I know, he's mad, the zapping albums of the moment are 'Get Close' by the Pretenders and 'Speaking in Tongues' by Talking Heads — and wants any suggestions as to the use of a Dongle, send 'em to me, and the funniest ones get published!!)... In *FireForce* press 'R' to select colour at start, then 'C' for the code, then use the joystick to enter the four keywords TECHNIX to start at stage one, IMFTC for stage two, UGLY for stage three (or is it VGLY?) or ENDLESS for unlimited lives... for *Frankie* ARPITS goes to the cheat menu and HAIRY CHICKENS goes to a screen editor/designer (those are the last words from M.R. Vine R.I.P. who posthumously wins the awards for 'Longest letter to someone called the Expert' AND 'Most loyal supporter of the Expert's take over the entire world campaign.') That's all for this month. See ya!





TANGLEWOOD ~ DWARF DIVE MAP.
2
1
3
A
B
C
BY PHILIP STOTT [1987]
-KEY-
LIFT
LADDER
ROPE
A - LIFT BUTTON
B - WHISKERS
C - ARCHANGELICA
EXIT/ENTRANCE
EXIT/ENTRANCES ONTO MAIN MAP
DWARF DIVE
2
1
3

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	Space Station.
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	Repairs.
	Hypergates (down)
	Hypergates (up)
	Asteroids.
	Abandoned Craft.
P	Pirates
	Upgrades / Repairs
T	Tax.
	Good Trade

Drawn by. J. Brincat.

This map was found in the pocket of an old pirate who travelled all Universe 1. !!!!

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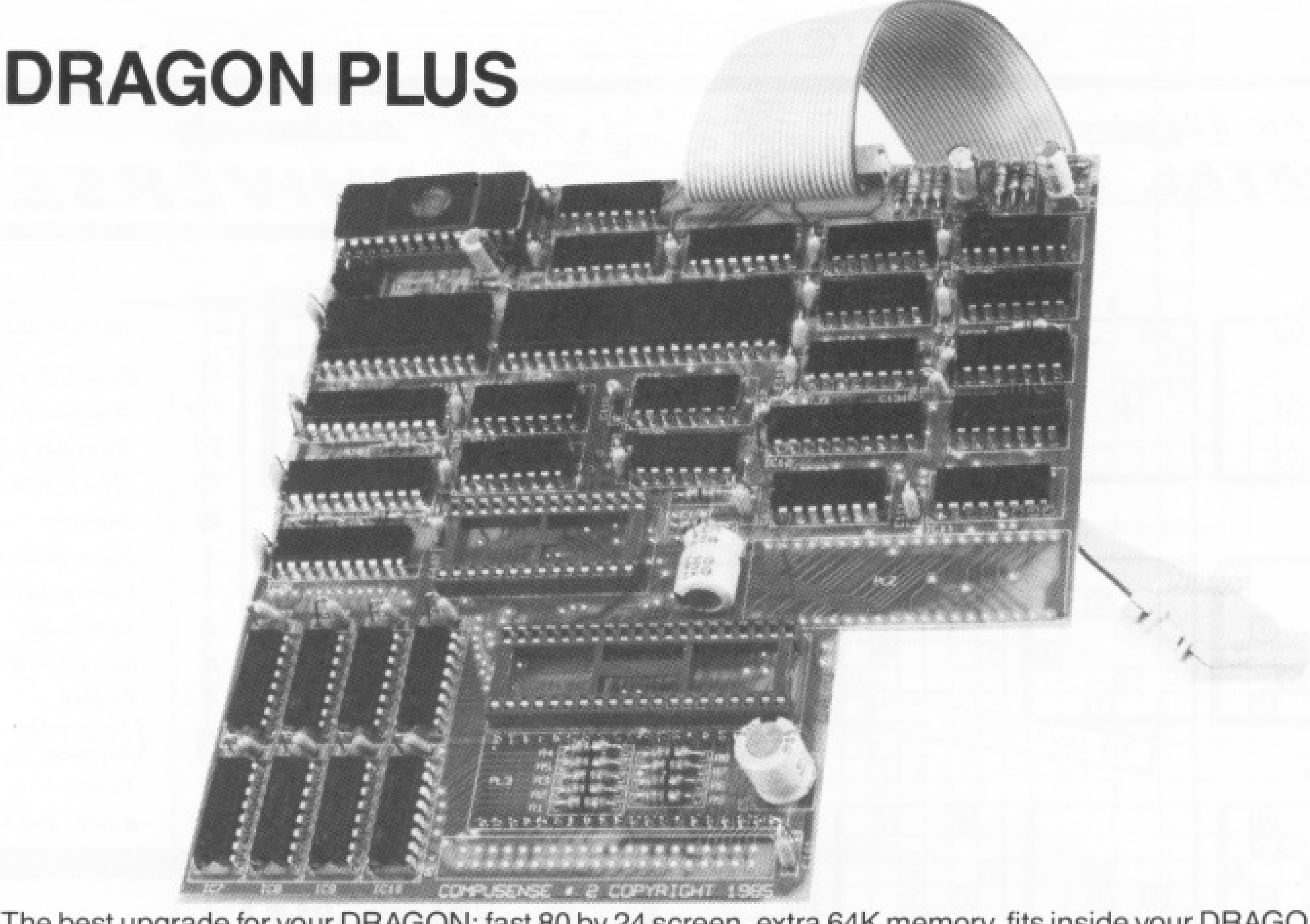
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High Noon

***Jonathan McGowan** ducks behind the cacti*

HIGH NOON is an addictive high speed machine code game for two players, featuring smooth moving hi-res graphics. Each player controls a cowboy using the joysticks to move up and down, and the fire button to shoot. The simple object of the game is to shoot your opponent before he gets you by dodging his bullets and taking cover behind the moving cart and the cacti. The joystick in the right socket controls the cowboy on the left of the screen and vice versa!

Use your bullets wisely — you only have sixteen to spare at each duel. If each player is out of bullets before either of them is shot, each will gain another sixteen. When the game is first run, you must enter the speed level by typing a key from one to eight (level one is the fastest). This affects the speed of the bullets and the cart — the speed with which the cowboys move is the same at all levels. The scores are kept by the computer and can be reset to zero by pressing 'R' during the pause after each 'death'.

To enter the program, type in the BASIC program that contains the machine code in DATA statements. When finished, save this on tape. Then run the program — it will POKE the machine code into memory, and when this is done, save the code on tape by: CSAVEM "HIGHNOON",&H7000,&H7FFF, &H7C00

It can then be run by EXEC &H7C00. When loaded from tape, EXEC only will do the job. If you find the program crashes, load back the BASIC program so that you can find and correct any errors.

```
1000 REM ** 'HIGH NOON'         **
1010 REM ** (C) J.MCGOWAN '86  **
1020
1030
1040 REM * ONCE LOADED INTO
1050 REM * MEMORY, THE PROGRAM
1060 REM * IS STARTED BY:
1070 REM * EXEC &H7C00
1080
1090
2000 DATA 7400.B7,7F.0A,C6,90,3D,C3,70,00,1F,02,F6,7F.0A,4F.1F
2010 DATA 01.E6,89,7F,00,86,20,3D,C3,06,01,1F,01.B6,7F,0A
2020 DATA C6.1B.3D,3A,C6,30,A6,A0,A7.84.A6.A0,A7,01,A6,A0
2030 DATA A7,02,30,88,20,5A,26,EE,39,12.12,00,00,00,00,00
2040 DATA 7500,CC,FF,FF,8E.06,00,ED,81,8C,1E,00,26,F9,BD,7C,80
2050 DATA BD,7B,80,39,12,12,00,00,00,00,00,00,00,00,00,00
2060 DATA 7520,8E.15,07,BD.75,2E.8E,0B,16,BD,75,2E,39,12,10,8E
2070 DATA 71,20,C6,38,A6,A0,A7,84,A6,A0,A7,01,A6,A0,A7,02
2080 DATA 30.88,20,5A,26,EE,39,12.12,00,00,00,00,00,00,00
2090 DATA 7580,B6,7F,02,C6,20,3D,C3,06,0E,1F,01.10,8E.72,A8,C6
2100 DATA 38,8C,07,6F,2D,0E.EE,A3.EF,02,EE,A3,EF,84,30,88
2110 DATA E0,5A,26,ED,39,12,12,00,00,00,00,00,00,00,00,00
2120 DATA 7600,BD,BD,52,B6,01,5B,81.0F,24,0D,F6,7F,00,C1,0B,27
2130 DATA 15,5A,F7,7F,00,20,0F,81,30,2D,0B,F6,7F,00,C1,8A
2140 DATA 27,04,5C,F7,7F,00,B6,01,5D,81,0F,24,0C,F6,7F,01
2150 DATA C1,0B,27.04,5A,F7,7F,01,39,81,30,2D,FB,F6,7F,01
2160 DATA C1,8A,27,F4,5C,F7,7F,01.39,12,12,00,00,00,00,00
2170 DATA 7700,7D,7F,06.26,1C,7D,7F,04,27,17.B6.FF,00,84,01,26
2180 DATA 10,7A,7F,04,B6,7F,00,8B,14,B7,7F,07,86,04,B7,7F
2190 DATA 06,7D,7F,08,26,1C,7D,7F,05,27,17,B6,FF.00,84,02
2200 DATA 26,10,7A,7F,05,B6,7F,01,8B,14,B7.7F,09,86.1B,B7
2210 DATA 7F,08,39,12,12,00,00,00,00,00,00,00,00,00,00,00
2220 DATA 7780,7D,7F,06,27,62,B6.7F,07,C6,20,3D,C3,06,00,1F,01
2230 DATA F6,7F,06,3A,86.FF,A7,80,A6,84,81,FF,26,16,86,48
2240 DATA A7,84,B6,7F,06,4C,81,1F,26,05,86,FF,A7,84,4F,B7
2250 DATA 7F,06,20,33,86,FF,A7,84,A7,88,20,A7,88,E0,86,6A
2260 DATA AA,88,C0,A7,88,C0,86,38,AA,88.40,A7,88.40,86,14
2270 DATA AA,88,60,A7,88,60,BD,78,57,B6,7F,06,81,1B,2D,04
2280 DATA 4F,7E,78,80,7F,7F,06,12,7D,7F,08,27,65,B6,7F,09
2290 DATA C6,20,3D,C3,06,00,1F,01,F6,7F,08,3A,86,FF,A7,84
2300 DATA 30,1F,A6,84,81,FF,26,16,86,12,A7,84,B6,7F,08,4A
2310 DATA 81,00,26,05,86,FF,A7,84,4F,B7,7F,08,20,34,86,FF
2320 DATA A7,84,A7,88,20,A7,88,E0,86,6A,AA,88,C0,A7,88,C0
```

```
2330 DATA 86,38,AA,88,40,A7,88,40,86,14,AA,88,60,A7,88,60
2340 DATA BD,78,57,B6,7F,08,81,05,24,05,86,01,7E,78,80,7F
2350 DATA 7F,08,39,12,12,12,12,86,3F,B7,FF,23,8E,84,00,C6
2360 DATA 14,A6,80,B7,FF,20,BD,78,7A,7F,FF,20,BD,78,7A,5A
2370 DATA 26,EF,86,37,B7,FF,23,39,12,12,86,64,4A,26,FD,39
2380 DATA 7880,43,84,01,B7,7F,0B,12,12,12,12,12,12,12,86,3F,B7
2390 DATA FF,23,F6,7F,0B,8E,7F,00,3A,A6,84,C6,20,3D,C3,06
2400 DATA 01,1F,01,B6,7F,0B,C6,1B,3D,3A,30,89,06,00,BF,7F
2410 DATA 0C,C6,01,34,04,86,20,3D,FD,7F,0E,FC,7F,0C,B3,7F
2420 DATA 0E,1F,01,10,8E,72,A8,A6,A0,A7,84,B7,FF,20,A6,A0
2430 DATA A7,01,B7,FF,20,A6,A0,A7,02,B7,FF,20,30,88,20,BC
2440 DATA 7F,0C,26,E3,35,04,5C,8E,16,00,30,1F,8C,00,00,26
2450 DATA F9,C1,30,27,03,7E,78,B3,35,10,86,37,B7,FF,23,39
2460 DATA 7900,B6,7F,04,BD,79,20,FD,06,66,FD,06,86,FD,06,A6,B6
2470 DATA 7F,05,BD,79,20,FD,06,7D,FD,06,9D,FD,06,BD,39,12
2480 DATA B7,7F,12,CC,FF,FF,7D,7F,12,27,09,1C,FE,46,56,7A
2490 DATA 7F,12,26,F7,39,12,12,26,EB,86,01,B7,7F,FF,BD,77
2500 DATA 80,20,E1,12,00,00,00,00,00,00,00,00,00,00,00,00
2510 DATA 7A00,86,64,B7,7F,00,86,20,B7,7F,01,86,01,B7,7F,02,B7
2520 DATA 7F,03,86,10,B7,7F,04,B7,7F,05,7F,7F,06,7F,7F,08
2530 DATA BD,7B,80,86,FA,B7,7F,20,12,12,BD,75,00,12,12,12
2540 DATA BD,75,20,BD,79,00,BD,7A,00,4F,BD,74,00,86,01,BD
2550 DATA 74,00,BD,77,00,4F,BB,7F,04,BB,7F,05,BB,7F,06,BB
2560 DATA 7F,08,81,00,26,06,86,02,B7,7F,0B,39,7A,7F,FF,26
2570 DATA D2,86,02,B7,7F,FF,BD,77,80,B6,7F,03,81,FE,27,C3
2580 DATA B6,7F,02,BB,7F,03,B7,7F,02,BD,75,80,7A,7F,20,26
2590 DATA B2,86,FA,B7,7F,20,7A,7F,03,20,A8,12,12,00,00,00
2600 DATA 7B00,B6,7F,FF,8E,04,00,9F,88,F6,7F,FF,4F,BD,95,7A,39
2610 DATA 7B20,4F,F6,7F,24,8E,04,00,9F,88,BD,7C,A0,B6,04,00,8E
2620 DATA 06,4B,BD,7B,66,B6,04,01,81,60,27,06,8E,06,4C,BD
2630 DATA 7B,66,8E,04,00,9F,88,F6,7F,26,4F,BD,7C,A0,B6,04
2640 DATA 00,8E,06,53,BD,7B,66,B6,04,01,81,60,27,06,8E,06
2650 DATA 54,BD,7B,66,39,12,80,70,C6,05,3D,C3,73,40,1F,02
2660 DATA C6,05,A6,A0,A7,84,30,88,20,5A,26,F6,39,12,12,04
2670 DATA BD,7B,20,-7F,FF,C3,7F,FF,C5,7F,FF,C7,86,FF,B7,FF
2680 DATA 22,BD,BA,77,39,12,00,00,00,00,00,00,00,00,00,00
2690 DATA 7C00,BD,BA,77,86,0D,BD,B5,4A,BD,B5,4A,8E,73,80,BD,90
2700 DATA E5,BD,80,06,27,FB,81,31,2D,F7,81,39,24,F3,80,30
2710 DATA B7,7A,62,7F,7F,24,7F,7F,26,BD,7A,00,B6,7F,0B,81
2720 DATA 02,27,0C,81,01,27,05,7C,7F,26,20,03,7C,7F,24,BD
2730 DATA 7B,80,8E,40,88,34,10,BD,80,06,81,52,26,09,7F,7F
2740 DATA 24,7F,7F,26,BD,7B,80,35,10,30,1F,8C,00,00,26,E5
2750 DATA 20,C7,12,12,00,00,00,00,00,00,00,00,00,00,00,00
2760 DATA 7C80,8E,06,00,10,8E,7D,00,EC,A1,ED,81,8C,07,20,26,F7
2770 DATA 39,12,12,00,00,00,00,00,00,00,00,00,00,00,00,00
2780 DATA 7CA0,8E,60,60,BF,04,00,BD,95,7A,39,00,00,00,00,00,00
2790 DATA 7D00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00
2800 DATA 00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00
2810 DATA 7F,FF,FF,FF,FF,FE,FF,FF,7F,FF,FF,00,00,FF,FF,FF
2820 DATA FF,FF,FF,00,00,FF,FF,FF,FF,FF,FF,FF,FE,FF,FF,7E
2830 DATA 63,6B,B8,41,8F,FE,FF,FF,7F,FF,FF,38,00,FF,86,38
2840 DATA C3,07,FF,38,00,FF,FF,C6,D7,70,83,1F,FE,FF,FF,7E
2850 DATA 6D,6B,BB,F7,7D,FE,FF,FF,7F,FF,FF,44,00,FF,7D,D7
2860 DATA 5D,7F,FF,44,00,FF,FF,DA,D7,77,EE,FB,FE,FF,FF,7E
2870 DATA 63,6B,B8,F7,9F,FE,FF,FF,7F,FF,FF,44,00,FF,8D,F7
2880 DATA 43,1F,FF,44,00,FF,FF,C6,D7,71,EF,3F,FE,FF,FF,7E
2890 DATA 6D,6B,BB,F7,ED,FE,FF,FF,7F,FF,FF,44,00,FF,F5,D7
2900 DATA 57,7F,FF,44,00,FF,FF,DA,D7,77,EF,DB,FE,FF,FF,7E
2910 DATA 63,98,88,77,1F,FE,FF,FF,7F,FF,FF,38,00,FF,0E,38
2920 DATA D9,07,FF,38,00,FF,FF,C7,31,10,EE,3F,FE,FF,FF,7E
```

```
2930 DATA 7F,FF,FF,FF,FF,FE,FF,FF,7F,FF,FF,00,00,FF,FF,FF
2940 DATA FF,FF,FF,00,00,FF,FF,FF,FF,FF,FF,FF,FE,FF,FF,7E
2950 DATA 00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00
2960 DATA 00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00
2970 DATA 00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00
2980 DATA 7F00,13,2D,01,FE,0E,00,1C,4F,00,49,01,01,11,BC,05,E0
2990 DATA FF,00,00,00,FF,A1,FD,07,91,0E,94,E1,88,89,32,00
3000 DATA FA,C0,00,00,01,00,00,00,BB,00,00,00,00,00,00,00
3010 DATA 7000,FF,FF,FF,FF,FF,FF,FF,03,FF,FE,03,FF,FE,01,FF,E0
3020 DATA 00,3F,FE,05,FF,FE,0D,FF,FE,3E,FF,FE,3E,FF,FF,3D
3030 DATA FF,FF,BD,FF,FF,DB,FF,FF,C7,FF,FF,03,FF,FE,01,FF
3040 DATA FE,01,FF,FE,01,FF,FE,20,FF,FE,20,FF,FE,20,EF,FD
3050 DATA 10,E0,FD,0E,07,FC,80,0F,FC,80,3F,FC,8F,FF,FC,70
3060 DATA FF,FC,00,FF,FE,01,FF,FE,01,FF,FE,FF,FF,FE,01,FF
3070 DATA FF,01,FF,FF,01,FF,FF,01,FF,FF,01,FF,FF,03,FF,FF
3080 DATA 03,FF,FF,03,FF,FF,83,FF,FF,83,FF,FF,83,FF,FF,83
3090 DATA FF,FF,C7,FF,FF,C0,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF
3100 DATA FF,FF,FF,FF,FF,FF,FF,E0,7F,FF,E0,3F,FF,C0,3F,FE
3110 DATA 00,03,FF,D0,3F,FF,D8,3F,FF,BE,3F,FF,BE,3F,FF,DE
3120 DATA 7F,FF,DE,FF,FF,ED,FF,FF,F1,FF,FF,E0,7F,FF,C0,3F
3130 DATA FF,C0,3F,FF,C0,3F,FF,82,3F,FF,82,3F,FB,82,3F,83
3140 DATA 84,5F,F0,38,5F,F8,00,9F,FE,00,9F,FF,F8,9F,FF,87
3150 DATA 1F,FF,80,1F,FF,C0,3F,FF,C0,3F,FF,FF,BF,FF,C0,3F
3160 DATA FF,C0,7F,FF,C0,7F,FF,C0,7F,FF,C0,7F,FF,E0,7F,FF
3170 DATA E0,7F,FF,E0,7F,FF,E0,FF,FF,E0,FF,FF,E0,FF,FF,E0
3180 DATA FF,FF,F1,FF,FF,81,FF,FF,09,FF,FF,FF,FF,FF,FF,FF
3190 DATA FF,FF,FF,FF,FF,FF,FF,F7,FF,FF,F7,BF,FF,F7,BF,F7
3200 DATA F7,3F,E7,F6,7F,E7,70,FF,E7,31,FF,E7,33,FB,E6,33
3210 DATA FB,C6,33,FB,C4,73,FB,C0,F1,F9,C1,F0,F9,C3,F0,F9
3220 DATA C3,F0,F9,C3,F0,F9,C3,F0,F9,C3,F0,F9,C3,F0,F9,C3
3230 DATA F0,F9,C3,F0,F9,C3,F0,F9,C1,F0,F1,C0,F0,61,C0,70
3240 DATA 03,E0,30,03,E0,00,07,F8,00,0F,FC,00,1F,FE,00,1F
3250 DATA FF,00,1F,FF,C0,1F,FF,E0,1F,FF,F0,1F,FF,F0,1F,FF
3260 DATA F0,1F,FF,F0,1F,FF,F0,1F,FF,F0,1F,FF,F0,1F,FF,F0
3270 DATA 1F,FF,F0,1F,FF,F0,1F,FF,F0,1F,FF,F0,1F,FF,F0,1F
3280 DATA FF,F0,1F,FF,F0,1F,FF,F0,1F,FF,F0,1F,FF,F0,1F,FF
3290 DATA F8,3F,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF
3300 DATA FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,80,00,FF
3310 DATA FE,00,00,7F,FC,00,00,1F,F8,00,00,0F,F0,00,00,0F
3320 DATA E0,0F,F0,07,C0,3F,FC,07,C0,3F,FE,03,C0,7F,FE,03
3330 DATA C0,7F,FE,03,C0,7F,FF,03,C0,7F,FF,03,C0,7F,FF,03
3340 DATA E0,7F,FF,07,E0,7F,FE,07,E0,7F,FE,07,F0,3F,FE,0F
3350 DATA F0,3F,FC,0F,F8,1F,FC,1F,F8,1F,F8,1F,F8,1F,F8,3F
3360 DATA FC,0F,F0,3F,FC,0F,E0,7F,FE,07,C0,7F,FE,00,00,FF
3370 DATA FE,00,00,FF,FF,00,01,E7,E7,00,01,E7,E7,80,03,E7
3380 DATA E7,80,03,E7,E6,00,00,C7,E2,00,00,CF,E2,00,00,CF
3390 DATA F3,00,01,CF,F3,00,01,CF,F1,00,01,8F,F0,00,00,0F
3400 DATA F8,00,00,1F,F9,00,01,9F,F9,00,01,9F,F9,00,01,9F
3410 DATA F9,00,01,1F,F9,F8,3F,1F,F8,FF,FF,3F,FC,FF,FF,3F
3420 DATA FC,FF,FF,3F,FC,FF,FF,3F,FF,FF,FF,FF,FF,FF,FF,FF
3430 DATA FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FF,FC,00
3440 DATA 3F,FC,00,3F,F8,00,1F,F8,00,1F,F0,00,0F,F0,00,0F
3450 DATA E0,00,07,E0,00,07,C7,9D,E3,C4,49,13,87,89,E1,84
3460 DATA 89,01,84,5D,01,80,00,01,C0,00,03,C0,00,03,C0,00
3470 DATA 03,C0,00,03,E0,00,07,E0,00,07,E0,00,07,E0,00,07
3480 DATA E0,00,07,F0,00,0F,F0,00,0F,F0,00,0F,F0,00,0F,F8
3490 DATA 00,1F,F8,00,1F,F8,00,1F,F8,00,1F,F8,00,1F,FC,00
3500 DATA 3F,FC,00,3F,FC,00,3F,FC,00,3F,FC,00,3F,FE,00,7F
3510 DATA FE,00,7F,FE,00,7F,FE,00,7F,FF,00,FF,FF,00,FF,FF
3520 DATA 00,FF,FF,FF,FF,FF,FF,FF,00,00,00,00,00,00,00,00
```

```
3530 DATA 7340,38,44,44,44,38,10,30,10,10,7C,38,44,18,20,7C,38
3540 DATA 44,18,44,38,18,28,48,7C,08,7C,40,78,04,78,3C,40
3550 DATA 78,44,38,7C,08,10,20,40,38,44,38,44,38,38,44,3C
3560 DATA 04,78,FF,00,00,00,00,00,00,00,00,00,00,00,00,00
3570 DATA 7380,20,48,20,49,20,47,20,48,20,20,4E,20,4F,20,4F,20
3580 DATA 4E,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20
3590 DATA 20,28,43,29,20,4A,4F,4E,41,54,48,41,4E,20,4D,43
3600 DATA 47,4F,57,41,4E,20,31,39,38,35,20,20,20,20,20,20
3610 DATA 20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20
3620 DATA 20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20
3630 DATA 20,45,4E,54,45,52,20,53,50,45,45,44,20,28,31,2D
3640 DATA 38,29,3A,00,FF,00,FF,12,FF,00,FF,00,FF,00,FF,00
3650 DATA 73A0,20,28,43,29,20,4A,4F,4E,41,54,48,41,4E,20,4D,43
3660 DATA 47,4F,57,41,4E,20,31,39,38,35,20,20,20,20,20,20
3670 DATA 20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20
3680 DATA 20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20
3690 DATA 20,45,4E,54,45,52,20,53,50,45,45,44,20,28,31,2D
3700 DATA 38,29,3A,00,FF,00,FF,12,00,00,00,00,00,00,00,00
3710 DATA XX
3720
3730
4000 CLS6:PRINT@233,"PLEASE WAIT";:SCREENO,1
4010 CLEAR 200,&H7000-1
4020 READ A$
4030 IF A$="XX" THEN CLS:PRINT "CODE NOW READY":END
4040 IF LEN(A$)=4 THEN P=VAL("&H"+A$):GOTO 4020
4050 POKE P,VAL("&H"+A$)
4060 P=P+1
4070 GOTO 4020
```


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Address..
.... Tele..........................

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Winners and Losers

Every month, Gordon Lee will look at some prize programming points from a previous month's competition

PROBLEM solving by simulation was the name of the game in the November edition of *Dragon User*. First of all though, I'd like to correct an error which crept in to the article on the Buffon's needle experiment which preceded the competition question. Due to the antiquity of my typewriter, the 'l' and the '1' look very similar. Consequently, in the first paragraph, the length of the needle should have been l units in length, and not 1. From this, the probability formula should now read as 2l/h(pi). Now to return to the competition!

The question involved ending up with six dice showing identical faces, when thrown a maximum of six times. At each subsequent throw, after the first, only selected dice need be thrown. Because of the large number of permutations that may occur during the playing of the game, it was impossible for a program to check every possible one of them in order to assess the chances of success. Such a task would probably take a lifetime — even for the computer — and would certainly not be possible within the closing date of the competition!

The task, therefore, was to devise a program which actually 'played' the game a sufficiently large number of times, while counting the number of winning throws as they occurred. From the data so obtained, an estimate of the probability could be made.

The competition question was to determine how many wins you could expect out of every thousand games played. By using the program listed on page 29 of February's issue, I predicted a result of between 156 and 184 winning games per thousand. This proved to be pretty near the mark, with most entrants coming up with figures within this range.

A number of entrants 'double-checked' their results by running several trials, each of a thousand games, in order to test their programs. My thanks, in particular, to Phil Sapiro and Brian Holmes for including the results of these tests with their entries.

I have included these results, together with all others submitted, on a bar-chart in **Figure 1**. This shows the distribution of your results in the range of 140 to 200 wins per thousand games. The higher the bar on the chart, the more answers of this figure were received.

Rolf Michelsen of Norway also programmed a graph into his listing which plotted each result as it was computed. As each game was played, the graph plotted the probability, and assessed on the results obtained so far. I have adapted this idea of a graph in **Figure 2**, which is a screen-dump of a typical trial. This plots the estimated probability calculated during a run of one thousand games. As Rolf states, the graph looks very ragged with only a few games played, but after 150 games it tends to flatten out, ending at about 180 won games per thousand.

The method of approach adopted by nearly all competitors was to imitate the way in which the game would be played using actual dice — the true object of problem solving by simulation.

A number of surprisingly compact programs were received. Examination of these revealed that most did not keep a record of each individual die thrown during a game, and so that once a target number for the dice was decided on in the first or second throw, it was not possible to change this 'target' value.

This device did not appear to materially affect the final totals, but it would not account for the remote possibility that it may be advantageous to aim for a different target on a subsequent throw (see the 'rules' of the game on November's competition page).

Finally, Brian Holmes asks about how to turn off the high speed poke 65495,0 (&HFFD7,0 hex). This is done by using poke 65496,0 (&HFFD8,0 hex).

Figure 1

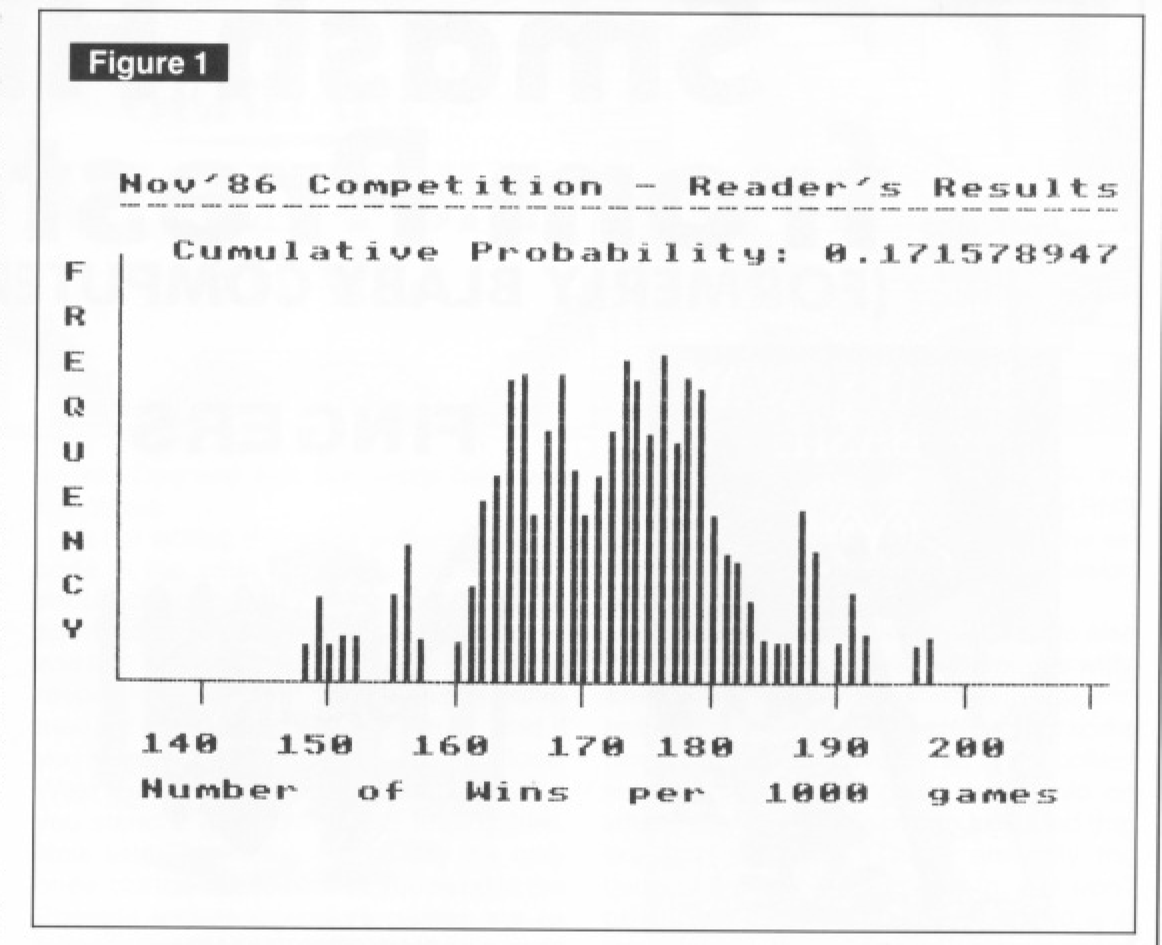
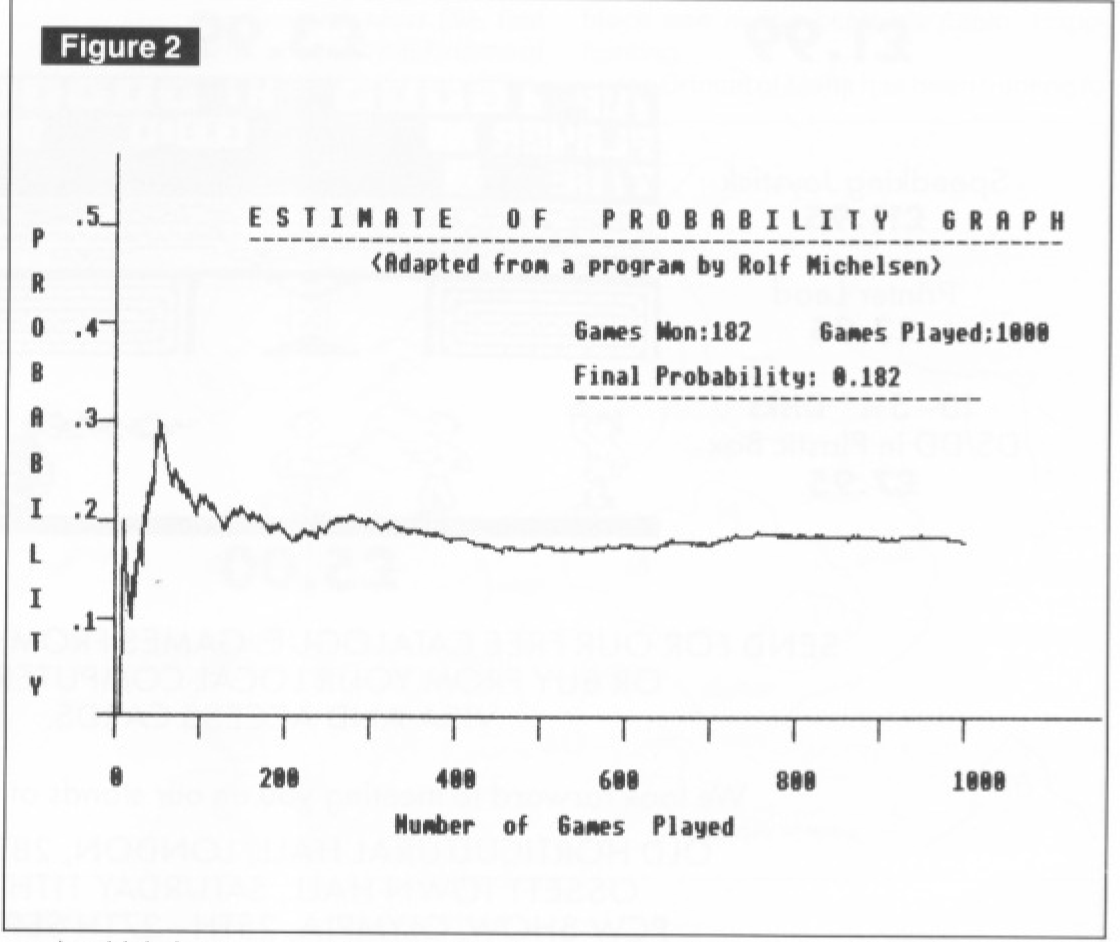


Figure 2



Smash Hits from Prestons

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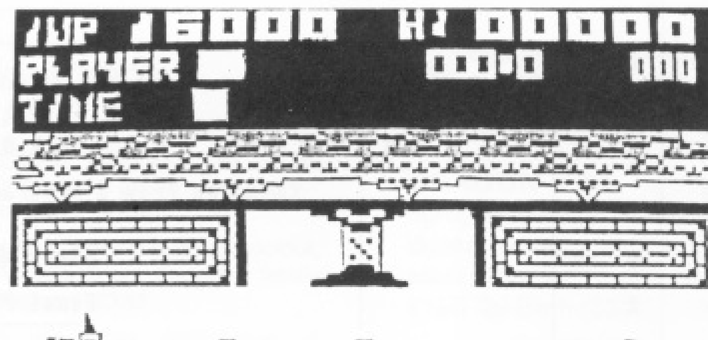
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DR48



IT'S ALWAYS nice when readers come to each other's rescue, on this occasion using me as a glorified postman, which is fair enough as I forgot to put Keith Marshall's address in the December issue. Keith was struggling with *Pyramid of Doom*, amongst other things, and Esther Duncan of 5 Montrose Drive, Garthdee, Aberdeen AB1 7DA has kindly sent in some information on that one for me to pass on to Keith. Before I do, though, I'll pass it on to you, too, as it's not an adventure that comes up very often.

Pyramid entrance

To get into the pyramid you need a large key, and to get the key you must first, in the desert, LOOP OG. Then you just YEK TEG and then ROOD NEPO at the pyramid. Esther says that she searched for months for that **!!** key (and those are her very words. Such language from a lady.)

In the same game there's also a tiny key, which is to be found north-east from the pool in the desert. Before that, though, you need to ELOP TEG, then go north-east, then YEK TEG DNA GID. Another piece of advice is to DIMARYP EDISEB GID, though Esther hasn't yet managed to enter what she finds there, or find a use for the tiny key. Is it a red herring? After all, it was found near a pool.

Esther herself admits to being a novice adventurer, and is looking for help on *Ten Little Indians, Don't Panic, Operation Safras, Pettigrew's Diary, Franklin's Tomb* (how to escape the cave) and *Mystery of the Java Star* — the mystery being how to get the game to load.

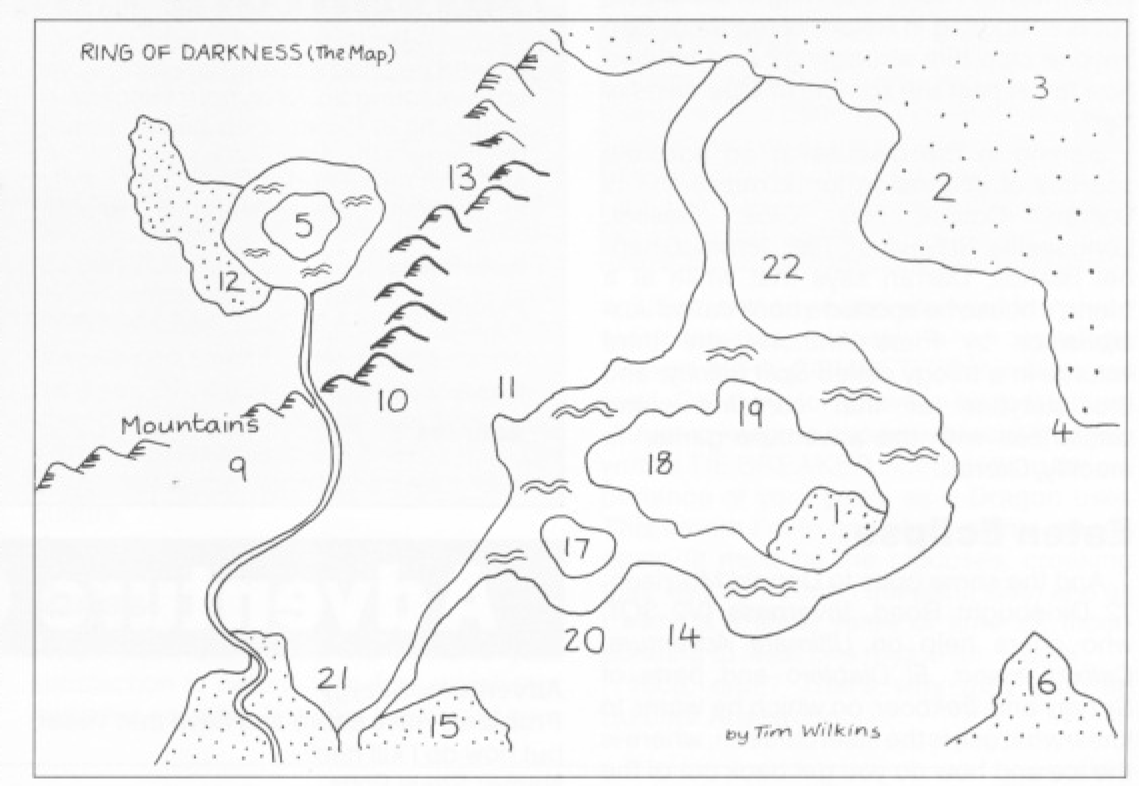
Mysteries, too, for Paul Smith in trying to use Cowen Software's *Adventure Writer.* Can any fellow users come to the rescue and contact Paul, whose address is 27 Sunridge Park, Midsomer Norton, Bath, Avon BA3 2NZ? If you need help on *Calixto Island*, the person to send your SAEs to is another Smith, Justin this time, his address being 32 Mountbatten Road, Bungay, Suffolk NR35 1PP.

Now look folks, someone out there must have completed *Operation Safras*, and yet my otherwise pretty extensive database of solved adventures contains not a single name with this game to its credit. Anyone who's just being modest about it, contact the column, and also contact Margaret Wardlow, 21 Acacia Avenue, Chapeltown, Sheffield S30 4PQ. Margaret can find agents One and Two, but needs help with the others.

As I'm writing this while suffering from a code in the node, it seems appropriate I should bring you some code cures. Oh, the agony and pain these words are causing — and that's only the jokes. Anyway, it's not me responsible for the codes, but a kind-hearted chap name of Mr. K. Hunt, and if you hunt for him at 11 Demarnham Close, West Bromwich, West Midlands B70 6RJ, you stand a good chance of finding him. Now listen carefully, I shall say zis only once, but the various codes you need in the Phoenix arcade-adventure games are as follows: *Death Mines of Sirus*, loading code for first adventure is CBLW, and for the second is TLL; *The Emperor Must Die*, first loading code TCHK, second WHLT, name of Emperor's plant is TIWEN, and secret formula for getting TIWEN is 1215219195; the loading codes in *If I Had a Million* are KRNS for the first adventure and EMPZ for the second; and the loading code in Mission Moonbase is J18-E99.

The man responsible for all these is also looking for people to swap adventures with, and I hope he means legitimate swaps and not rampant piracy. He says he has some rare and unusual adventures in his collection, too. Finally he gives some info on where the various discs can be found that are *Lost in Space.* These are only the general areas for you to look in, so I won't print them backwards. The blue disc is in the cafeteria, the red one in the engineering section, the white one in the library and the black one in the captain's cabin. Happy hunting.

Joe Brincat of Malta has been hunting for



KEY

1. **Zondra's Quest**
2. **Barrows of Bran**
3. **Ethwood Castle**
4. **Dragon's Sign**
5. **Nothern Sign**
6. **Hammers Pit**
7. **Wildton**
8. **Death's Reach**
9. **Solomon's Throne**
10. **Maze of Minos**
11. **Ocean Town**
12. **Briskcom Harbour**
13. **City of Eagles**
14. **Port Stillwater**
15. **Gondar's Monument**
16. **Borderton**
17. **Misea Bouy**
18. **Castle Pepper Quest**
19. **Tower of Acheron**
20. **Doom Labyrinth**
21. **Southern Sign**
22. **Houston Hollow**

the amulet in *Trekboer*, which he knows will get him through the forcefield — but where is it? HPATONEC BMILC. Joe sent in a map for *Total Eclipse*, which is a bit too tricky to publish, but what he's really hoping for is someone to tell him how to get through to the abandoned craft on this one. He says normally the game stops in space, but on one occasion he put in some pokes before he loaded and this got him through to the abandoned craft.

Now, Sod's Law being what it is, he didn't note the numbers and hasn't been able to find them since — despite a year of looking and hoping! If anyone can stop this adventurer going into his own total eclipse, write to Joe at 73 Annunciation Street, Hamrun, Malta.

About to go into a total eclipse on *Mystery of the Java Star* is Paul Smith, 17 Balham Close, Rushden, Northants NN10 9JL, and that's because he can't get the Java Star itself up to the surface without being burned alive. In other words, Smith is getting crisped. He also wants to know how to get off the first floor in *Madness and the Minotaur*. Any offers?

An offer comes from Andrew Logan, and that's to help anyone struggling in *Aquanaut 471*. Andrew's address is 19 Derwent Avenue, Falkirk FK1 5HZ, while *Jerusalem Adventure* and *Devil's Island* tips are available from John Smallwood, 51 King's Drive, Fulwood, Preston, Lancs PR2 3HQ.

Another kind-hearted reader is Craig Graham, 21 Alnwickhill Gdns, Edinburgh EH16 6NE, who's solved *Trekboer, Sea Quest, Vortex Factor* and *Ring of Darkness*, but is struggling in *Return of the Ring*. Can anyone stop him struggling? And tell him how to get past the zombie in *Mountains of Ket*?

Joining in the discussion on possible sources of inspiration for *Juxtaposition* is Darran Collins, 50 Clos Gosset, Longueville, St Saviour, T32, Jersey, Channel Islands. Darran says that while at a friend's house he spotted a book called *Juxtaposition* by Piers Anthony, the third volume in a trilogy called *Split Infinity*, and the storyline of that contains some similarities with the adventure game. Ta muchly, Darran.

Eaten Eclipse

And the same goes to Donald Morrison, 72 Diriebught Road, Inverness IV2 3QT, who offers help on *Ultimate Adventure, Calixto Island, El Diablero* and parts of *Syzygy* and *Trekboer*, on which he wants to know what use is the steel canteen, where is the ice and how do you get back out of the chasm after getting the Xendos plant?

Graham Naylor of 30 Haugh Lane, Newhey, Rochdale, Lancs OH6 3RB would like to get hold of a copy of *Brittania* by Keydata, a strategy game which I reviewed in the September 1985 issue. Graham obviously takes his time getting round to buying things, and he's also looking for a copy of *Total Eclipse*, as he says that his own copy was eaten by his dog. What? Dog swallows cassette tape? Or does he just mean the instructions? I'm baffled, but if anyone's got either to spare maybe they could contact Graham, provided the dog doesn't eat postmen too.

Simon Jones of Eye in Suffolk asks for help on *Golden Baton*, namely how to feed the crab (SGULS HTIW) and how to pass the lizard (ZTRAUQ EVAW), while Christopher Haynes from Birmingham is having problems getting the flask from Princess Xandra in *Return of the Ring*. FFATS EHT REH EVIG. Don't worry if she disappears for a while, as she will reappear later.

And that, my friends, is the last bit of backwards writing you're going to get from me. Yes, this is to be my last *Adventure Trail* for Dragon User magazine, as I've decided that after almost three years of Dragon adventuring, the time has come for a change.

One reason is that I think a fresh face will bring fresh life to the column, but the main reason is that I've been getting more and more letters every month asking for information on how to write and program adventure games, and as a non-programmer I can't offer any help in that direction. All I've been able to do is point readers in the direction of my brother Peter's book, *Exploring Adventures on the Dragon*. As of next month, however, you'll be pointed permanently in his direction — he is your new adventure Trailer. And he will be providing a new regular series on how to program your own adventures.

Writing your own material is becoming increasingly necessary as the commercial releases dwindle and more and more people want to put out their own titles in the hope of selling a few copies to fellow Dragon users.

This is the way the Dragon world is going, and as has been stated in *Dragon User* time and again, it's your own enthusiasm for your own machine that will keep everything alive.

I've been very fond of my Dragon, as it was the first computer I ever owned, but to be honest I get less and less opportunity to use it as I have to work on newer micros.

Brotherly take-over

One reason I bought my Dragon initially was to discover what adventure games were all about, as my brother was heavily into them even then, constantly raving about this game called *Colossal Caves* that he'd played on a Commodore PET at work. So it seems appropriate that I should hand over to him.

You'll be in good hands, too, as in addition to his Dragon book and three Dragon adventures for Duckworth, he's written two adventures that Romik published for the Commodore 64, and we've written a few adventures together, too, me doing the planning and him doing the programming. So he knows what he's talking about, and from next month you'll be able to listen to him. I'm sure you'll be interested in what he has to say, and I hope he makes as many friends among Dragon User readers as I have.

Adventure Contact

To help puzzled adventurers further, we are instituting an Adventure Helpline — simply fill in the coupon below, stating the name of the adventure, your problem and your name and address, and send it to Dragon User Adventure Helpine, 12/13 Little Newport Street, London WC2H 7PP. As soon as enough entries have arrived, we will start printing them in the magazine.

Don't worry — you'll still have Adventure Trial to write to as well!

Adventure . . . .

Problem . . . .

. . . .

Name . . . .

Address . . . .

. . . .

Adventure Contact

Adventure: *Syzygy*
Problem: Have sabre and have met Vader, but how do I kill him?
Name: Steve Potts
Address: 1 Bardney Road, Washingborough, Lincoln LN4 1AQ.

Adventure: *Tanglewood*
Problem: How do I get past the gi-ants? What should I do in Shark Castle?
Name: The Excerpt
Address: 25 Fife St., Dufftown, Keith, Banffshire, AB5 4AL.

Adventure: 1) *The Vortex Factor* 2) *Tanglewood* 3) *Syzygy*
Problem: How to use the time machine/open safe and north door 2) Help! 3) Can't use co-ordinates.
Name: Rhys Davies
Address: 88 Preston New Road, Southport, Merseyside PR9 8PH.

Adventure: *Total Eclipse*
Problem: How many credits are needed to get to a higher technical level?
Name: N. I. Clubb
Address: 254 Baldwin's Lane, Croxley Green, Herts WD3 3LQ.

Multiple missiles

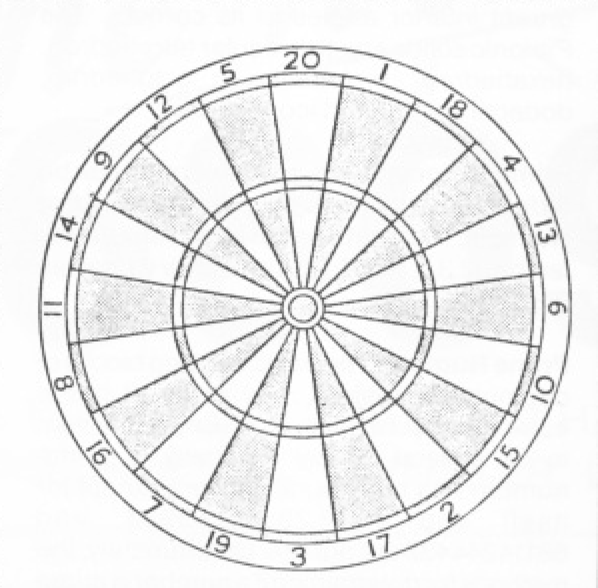
*Wizard **Gordon Lee** turns a dartboard into a table*

THIS month, the competition is related to the numbers on a standard dartboard. Take a single dart and aim for any single on the board. If you score either a double, treble, or bull, then throw again. Taking the score from the single dart, move around the dartboard in a clockwise direction, adding at each step the score in that sector of the board. Continue in this way until your running total equals a perfect cube.

For example, if the dart landed on 10, your score would run:

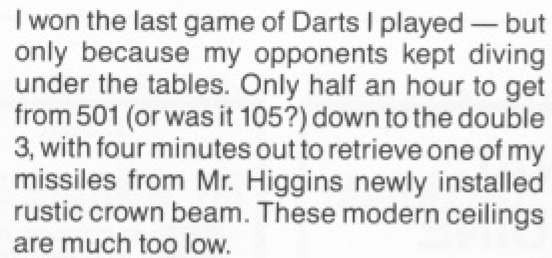
10 + 15 = 25 : 25 + 2 = 27

As 27 is the cube of three, the game would end on this score. Of course, throws of 1 and 8 would end immediately as they are themselves perfect cubes, but for other starting scores you may need to make more than one circuit of the board.



Can you produce a table showing the final score obtainable from each of the twenty sectors of the board?

Prize



I won the last game of Darts I played — but only because my opponents kept diving under the tables. Only half an hour to get from 501 (or was it 105?) down to the double 3, with four minutes out to retrieve one of my missiles from Mr. Higgins newly installed rustic crown beam. These modern ceilings are much too low.

My arithmetic is so bad that they won't even let me keep the scores, so I won't be staking my chances on this month's competition, either, but for those who take up the challenge (and there isn't any excuse now — Christmas is over, it's time to pay the bills) we have a box full of ace Microdeal game *Tanglewood*, which the Expert is going bananas on this month (well, it makes a change from us throwing him bananas). What d'you mean, you don't watch *Willo The Wisp*? It's never too late to start getting culture.

Rules

When you have cubed the circle to your satisfaction or before 15th July, whichever happens soonest, send us a listing of your solution, and any notes you want to include (no cassettes, please) in an envelope marked APRIL COMPETITION in large red (well, OK, they don't have to be red) letters.

Just to keep us happy, we insist that you write a TIE BREAKER incorporating the experience of your years as a Dragon user. This month I'm in one of my poetic moods again (it must be the crocuses, croaking their way up through the patio tiles) and all I want is a short verse or limerick incorporating at least one rhyme for 'tangle'.

Nice, enni? That's why they call me Butcher Armstrong.

January winners

We were sore disappointed in the paucity of entries for the January competition, as we had hoped it would bring the Artist in you out into the open. Well, it did, and we've put him over there in the corner with the poet ... The entries we did get were of a high quality, though. Congratulations.

The best entry came from G. R. Barber of Sutton Coldfield, and we're awarding him an extra mystery game for effort. The other winners are S. A. Siddiqui of Chiswick, F. J. Taylor of Middlesbrough, John Smallwood of Preston, Darryl Grove of Sunbury-on-Thames, Corporal Bishop of BFPO 23 and David Gassman of Marnhull. Best tiebreaker from Mr. Smallwood: 'If 17 is the random number, then ERNIE is a ZX 81'.

Could well be, John. He's been about as much use as a ZX 81 to me so far...

These folk will all be receving their copies of Catacomb Crisis from Microvision, just as soon as we get them. Just when I thought I'd got this monthly mass mailing bit well and truly sorted out...

Solution

There is no solution. How can you have a solution to a pattern? The Answer does not appear on its usual page. But we will be looking at some of the best entries at a future date, when Gordon has worked out how they did it.

The final instalment of the mathematical glossary

Magic squares. Popular type of puzzle in which a square array of n^2 positive integers, such that the sums of each vertical, horizontal, or main diagonal line of numbers is always the same. The simplest magic square is:

8 1 6
3 5 7
4 9 2

Generally, magic squares are formed from an ascending series of integers from 1 upwards. Some squares can be 'multiple magic squares', in which other combinations of component integers also total the magic constant, or in which the square of the integers also total a second constant.

Mersenne Prime. A number in the form $(2^n - 1)$ where n is a prime number and the resulting number is itself prime. Mersenne primes are closely related to 'perfect' numbers (*q.v.*).

Octahedron. One of the Platonic solids having eight triangular faces.

Palindromic number. A number which reads the same backwards as forwards eg 123454321. Certain palindromic numbers have unusual properties.

Pascal. No, not the programming language! Blaise Pascal was a 17th century French mathematician now best known for his Pascal's Triangle. He also carries out much research on probability theory.

Perfect cube. A number in the series 1,8,27,64,.... That is, a number whose cube root is an integer.

Perfect number. A number whose aliquot divisors add up to the number itself. The smallest is 6 (1 + 2 + 3), and next comes 28 (1 + 2 + 4 +7 + 14). To date only thirty perfect numbers are known. They are directly related to the Mersenne primes. For each Mersenne prime there is a corresponding perfect number which can be found from the following formula:

Perfect number = $(2^{n-1})(2^n - 1)$

The first five perfect numbers are formed by using the values 2,3,5,7, and 13 for n in the formula, as follows:

n	Perfect number = $(2^{n-1})(2^n - 1)$
2	6
3	28
5	496
7	8128
13	33550336

The largest perfect number discovered to date is the 30th in the series. The value of n is 216091, and the resulting perfect number has a total of 130100 digits!

Platonic solids. The five regular convex solids, ie solids bounded by regular polygons, with congruent faces and congruent interior angles at its corners. The Platonic solids are: the regular tetrehedron, hexahedron (cube), octohedron, dodecahedron, and icosahedron.

Prime factor. Any composite number can be reduced to a unique set of prime factors. For example, the number 126 has prime prime factors: 2,3,3, and 7. This is usually writted as 2.3.3.7 or $2.3^2.7$

Prime Number. The basic building blocks of our number system. The study of prime numbers abounds with curiousities sufficient to fill several books! Basically, a prime number has no integral divisors except for itself and 1. 7,29,433,53993, and 88114244437 are primes. Unfortunately, the methods for determining if a number is prime or not (apart from trial division) is very complex. There is an infinite number of primes. A number of curiosities relating to primes include palindromic primes (79997 and 7272727 are two of them), and prime pairs. These are pairs of primes having a difference of two, eg 11 and 13, or 54917 and 54919.

Pyramidal number. A number in the series 1,5,14,30,55,etc. Each term is the sum of successive square numbers (1 + 4 + 9 + 16 + 25 + ...). A pyramidal number of cans can be stacked in the form of a square-based pyramid, as, for example, in a supermarket display.

Square number. In recrational mathematics a square number is a perfect square, ie a number with an integral square root.

Tetrahedral number. A number in the series 1,4,10,20,35,... Each term is the sum of successive triangular numbers (1,3,6,10,15,....).

Tetrahedron. The simplest of the Platonic solids having four faces, each face being an identical equilateral triangle.

Triangular number. One of the figurate numbers (*q.v.*)

Unity. The mathematical term for one (1).

Zero. One less than unity! Nought. The starting point on a scale of measurement.

With zero we conclude this brief excursion into some of the more commonly used terms in recreational mathematics. If your own particular favourites are not amongst them, please accept my apologies!

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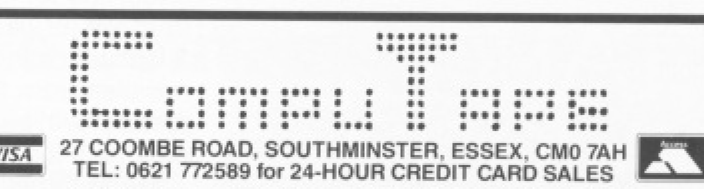
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